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23

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27 OCT 99

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MEDICAL MAGAZINE.

OCTOBER, 1899.

A CASE OF UNILATERAL OPHTHALMOPLEGIA.

By James Hendrie Lloyd, A.M., M.D.,

PHILADELPHIA,

Neurologist to the Philadelphia Hospital; Physician to the Methodist Episcopal Hospital, and to the Home for Crippled Children.

It has been my fortune in the last two years to see three cases of ophthalmoplegia. The first of these was a case of total and complete unilateral ophthalmoplegia (internal and external), in a man, caused by a syphilitic neoplasm at the base of the brain, just behind the orbit (*Annals of Ophthalmology*, January, 1898).

The second case was one of nuclear ophthalmoplegia in a woman, closely following the type of cases originally described by Hutchinson. In her case the ophthalmoplegia was not unilateral, but neither was it total,—that is to say, many of the orbital muscles on both sides were involved, but not all of them. This second case has only recently been reported (*Philadelphia Medical Journal*, June 3, 1899).

I have now to put on record a third case of ophthalmoplegia. This case is almost the exact counterpart of the first of the above-described cases,—that is to say, it is a case of total and complete unilateral ophthalmoplegia, both internal and external. By way of introduction, it may be well to state here briefly, as I did in reporting the preceding cases, the significance of the various types of ophthalmoplegia. Following Brissaud, these paralyses of the ocular muscles may be regarded as presenting four aspects: First, the ophthalmoplegia may be total,—*i.e.*, all the muscles of both orbits, both internal and external, are involved; second, the paralysis may be complete,—*i.e.*, the muscles have lost all their power or, in other words, are en-

tirely paralyzed; third, the ophthalmoplegia is partial,—*i.e.*, only some, not all, of the muscles are involved; and in the fourth type the paralysis is incomplete,—*i.e.*, the affected muscles are not totally paralyzed, but are only paretic.

These four types include all possible combinations of orbital paralyses, except that we must still further distinguish between a bilateral and a unilateral ophthalmoplegia.

The clinical significance of these various groups is generally conceded to be about as follows: A total and complete ophthalmoplegia, where bilateral, is indicative of a nuclear lesion, whereas a total and complete unilateral ophthalmoplegia is almost as conclusively indicative of a peripheral lesion. This is for the obvious reason that a nuclear lesion is seldom, if ever, unilateral. The nuclei of the ocular nerves, located far apart, as they are, some in the midbrain and some in the pons, are at times subject to an insidious destructive process, which eventually leads to complete and total paralysis of all the orbital nerves. The only nerve branches excepted in this affection are, it has been claimed, those that supply the internal muscles of the eye,—that is, the iris and ciliary body. But even this exception is rare. When it does occur, it depends upon the fact that the nuclei supplying the internal muscles of the eye are located far anterior in the midbrain, or rather in the lateral walls of the third ventricle, and may sometimes escape.

Considering this fact, Hutchinson proposed a still further division, into an internal and external ophthalmoplegia (better *interior* and *exterior*), and cases doubtless arise which exhibit these varieties. A partial ophthalmoplegia—*i.e.*, one in which not all but only a few of the muscles are involved—may also be indicative of a peripheral lesion, but this depends somewhat upon what muscles are involved. If, for instance, both abductor muscles were alone involved, the lesion would evidently be one that implicated both sixth nerves, and would, therefore, probably be exterior to the pons, at a point where these nerves emerge in close proximity to each other, on either side of the median line. Again, a total and incomplete bilateral ophthalmoplegia, or one in which all the muscles in both eyes are involved, but not to an equal extent, would probably indicate a nuclear lesion which had invaded all the nuclei, but at the time of observation had not entirely destroyed them all.

With these various points in mind it is possible to arrive at a very exact diagnosis of the location of the lesion in the various forms of ophthalmoplegia. This is true especially in cases like the one I am about to describe. A total and complete unilateral ophthalmoplegia—that is, one involving all the muscles, both interior and exterior, of only one eye—can be claimed almost indubitably to be due to a lesion

either within the orbit or just behind it. In such a case, moreover, we are not usually dependent entirely upon the paralysis of the motor nerves of the eye for the diagnosis. The close proximity of the fifth nerve, one of whose main divisions runs through the orbit, gives unmistakable evidence of the seat of the lesion. Thus, in the first case above mentioned, the patient not only had a unilateral ophthalmoplegia, but he also had extensive anesthesia in the territory of the fifth nerve.

Likewise in the following case it will be observed that the fifth nerve is extensively implicated, and the significance of this must be that the lesion is between the posterior part of the orbit and the Gasserian ganglion. To understand this aright, it must be recalled that the three divisions of the fifth nerve arising from the Gasserian ganglion pass out of the cavity of the skull in the immediate neighborhood of the posterior part of the orbit. The ophthalmic division, in fact, passes into the orbit, through the sphenoidal fissure. The superior maxillary passes out by way of the foramen rotundum, and the inferior maxillary by the foramen ovale, both of which foramina are located close behind and a little to the outer aspect of the sphenoidal fissure. Moreover, the motor branch of the fifth nerve, which, of course, does not arise from the Gasserian ganglion, but passes just beneath it, also finds its exit through the foramen ovale. Consequently, the involvement of the motor branch of the fifth nerve, in any case of unilateral ophthalmoplegia, has great significance with reference to the location of the lesion. If, in addition to this symptom-complex, there is added total blindness in the affected eye, due to the lesion involving the optic nerve, a picture is presented of a retro-orbital lesion which, it seems to me, is unmistakable.

The case which I now report occurred in my wards at the Philadelphia Hospital, and is given below from notes taken by Dr. W. H. Sears, the resident physician.

S. J., white, aged 67 years.

Chief complaint, affection of the eye. Mental condition fair.

Family History.—Her father died of dropsy and her mother of typhoid pneumonia. She has one sister living and well. Her mother had four still-born and seventeen living children; all have died save four, and of two of these she knows nothing.

Past Medical History.—She had the diseases of childhood, and has had asthma and valvular heart-disease for some years. She injured the left side of her head twenty years ago, and was operated on at the German Hospital. Twenty years ago ulcers appeared on her legs, since then she has had more or less trouble with them. Six years ago

the left side of her body had several suppurating areas, from which pieces of bone were discharged. These have since healed.

Examination upon Admission.—General appearance: a wrinkled old woman, somewhat emaciated, with absence of hair upon the top of the scalp, where there are found depressions indicating absence of bone, and most of the skin consists of scar tissue. She has scars, also, over her right clavicle and supraclavicular region.

The right leg is covered with cyanotic and indurated tissue in the upper two-thirds, and involving the knee-joint, which is partially ankylosed; probably some bone has been removed from this area.

Right eye protrudes from the orbit, but is completely covered with upper lid, which is absolutely paralyzed (two years, she says). There is no pupillary reaction upon the right side, and the visual power seems entirely lost. Eyeball is felt to be pushed forward, but there is no especial tenderness. The left eye is apparently normal.

Mental condition is questionable. She is very irritable and obstinate, not wishing to be annoyed by an examination, and absolutely refusing a complete examination of sensation and even knee-jerks, until persuaded. Her language is at least unbecoming; there is no speech defect.

Tongue protrudes to the right; no tremor.

Motion in the arms good; in the left leg good; the right leg is lame, due to disease of leg and knee-joint. All of the right-eye muscles, except the orbicularis palpebrarum, are completely paralyzed. There is also a palsy of the temporal, masseter, and pterygoid muscles.

Reflexes.—Knee-jerks present on both sides, slightly more marked on the right side than on the left.

Sensation.—There is an area of anesthesia of right face, which cannot be definitely outlined, owing to her obstinacy; but seems to be almost coextensive with the distribution of the fifth nerve. There is also anesthesia of right half of tongue, and the conjunctiva and cornea of right eye.

Taste is normal for bitter substances.

Smell is apparently normal.

Hearing is equal on both sides, nine inches for a watch.

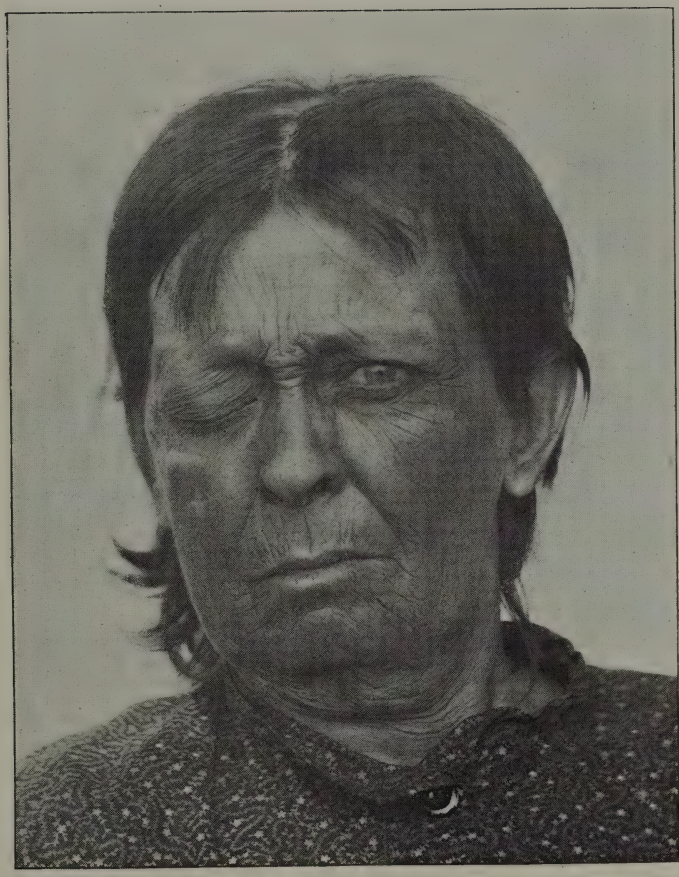
Lungs are apparently normal.

Heart.—First mitral sound is accompanied by a short systolic murmur. Cardiac dulness is increased downward and to the right. Over the lower half of the pericardium is heard a double rasping sound, suggestive of pericarditis.

Kidneys.—Examination shows trace of albumin and casts.

June 23, 1899: Examination of eyes by Dr. Veasey:

Left Eye.—Pupil immobile and does not react to any stimulation; four millimetres in diameter. The media are clear; there is



A case of unilateral ophthalmoplegia, with involvement of the fifth nerve.

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27 OCT 99
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complete atrophy of the optic nerve. The arteries are very much smaller than normal.

There is some protrusion of the eyeball, which is absolutely fixed. The ocular and palpebral conjunctiva are injected. There is complete anesthesia of the cornea and conjunctiva. There is no movement of the eyeball in any direction. There is complete ptosis of the upper lid. No growth can be felt behind the eyeball.

Vision.—Total blindness.

Oculus Sinister.—Pupil responds promptly to light, accommodation, and convergence. Media are clear; small, vertically oval disk, which is somewhat pale; paleness being more marked in outer half of disk. Hypermetropia and astigmatism are present. Ocular movements are perfect. Eye-grounds negative. Vision 20/20.

Analysis of Symptoms.—The absence of pain in this case is a most striking and, to me, inexplicable symptom. A lesion so extensive and destructive as this one must be would, it might be supposed, cause intolerable pain. The involvement of the fifth nerve would seem to entail suffering. In the other case, referred to above, in which the symptoms were almost identically like those in this case, the pain was constant and extreme. In this woman's case, however, there is no complaint of pain whatever at present, and only the history of slight neuralgic symptoms in the past. This inclines me to the belief that the lesion is not an actively necrotic one. If, for instance, as in the former case, the lesions were destructive meningeal syphilitic neoplasm, eroding the underlying bone, pain would be an inevitable symptom. The probability, therefore, is that the lesion is rather a benign neoplasm, slowly making pressure on the various nerve-trunks, and not producing symptoms of irritation.

The protrusion of the eyeball in this case is highly characteristic. It is due to the overaction of the unstriped muscles of the orbit, originally described by Müller, which are supplied by sympathetic fibres. The action of these unstriped muscles is to cause protrusion of the eyeball, hence a slight exophthalmos is to be expected in cases of paralysis of the orbital nerves, of the third nerve especially.

The involvement of the fifth nerve, in this case, indicates, in my judgment, a lesion anterior to the Gasserian ganglion, and this for two reasons. In the first place, because the motor branch is involved, and, in the second place, because the lesion, in order to involve at the same time the orbital nerves and the various divisions of the fifth nerve, as well as the optic nerve, which passes into the orbit by way of the optic foramen, must be in the circumscribed area anterior to the Gasserian ganglion and posterior to the orbit.

Finally, the fact that the optic nerve of the left—the sound—eye

is not involved is an additional evidence of the fact that, in this case, the lesion is extremely circumscribed. A lesion of the midbrain, for instance, which, of course, might involve the nuclei of some of the orbital nerves, would not cause a unilateral optic neuritis, on the one hand, nor a unilateral total and complete ophthalmoplegia, on the other. Such a midbrain lesion might, and probably would, cause optic neuritis as an early symptom, but the neuritis would almost certainly be in both eyes; while, as for the ophthalmoplegia, a one-sided midbrain lesion could only cause paralysis of the third nerve, and possibly of the fourth, but by no chance of the sixth.

TUBERCLE OF THE TESTICLE IN CHILDHOOD.

THE *Journal de Clinique et de Thérapeutique infantiles* of May 4 contains a report of M. Felizet's observations on fifty-eight cases of tubercle of the testicle in childhood. From these it appears that the disease almost invariably attacks this organ in children under seven years of age. As in adults, the epididymis is by far its most usual place of origin, the cord is less often invaded, the prostate, the vesiculæ seminales, and the bladder still less frequently. Hydrocele is rarely present, and the course of the disease, as might be expected in tissues which are virtually embryonic, is often rapid, infection proceeding not only by the spermatic blood-vessels, but by the inguino-iliac lymphatics also. M. Felizet is not an uncompromising advocate for castration as a remedy, but is disposed up to a certain point to rely on hygienic and medicinal measures. Even when there is adhesion of the testicle to the scrotum and subsequent abscess formation, he is content to employ local conservative methods. When, however, in addition to suppuration there are present the signs of general impairment of health, he advocates the immediate removal of the gland as the only means of preventing a very rapidly fatal form of general tuberculosis. Unfortunately we are not informed of the results obtained by treatment in these fifty-eight cases. If they should hereafter be forthcoming, they ought materially to aid a decision as to the true indications for castration in the infantile variety of this disease. M. Felizet contends that the condition of rapid tissue development is not favorable to the resistance of an infective process, and in that case the stage of hygienic treatment and local conservative surgery must be a period of watchful care and not be too prolonged. Many authorities consider that in the adult excision of the testicle offers the best hope of cure; and we are still in want of proof to show that the case of children is materially different.—*The Clinical Journal.*

THE DIAGNOSIS OF MITRAL STENOSIS.[1]

By A. A. Stevens, M.D.,

PHILADELPHIA,

Professor of Pathology in the Woman's Medical College of Pennsylvania, and Lecturer on Terminology, and Instructor of Physical Diagnosis in the University of Pennsylvania.

Although Fauvel[2] was the first to describe minutely the physical signs of mitral stenosis, the credit of recognizing the significance of a presystolic thrill and murmur at the apex properly belongs to Laennec.[3] This astute observer, in describing the physical signs of a case of valvular disease, writes: "The hand placed over the region of the heart feels the pulsation strongly and accompanied by the purring vibration; the stethoscope, applied between the cartilages of the fifth and seventh ribs, gives the following results: Contraction of the auricle extremely prolonged, accompanied by a dull but strong sound, exactly like that produced by a file on wood. This sound is attended by a vibration sensible to the ear, and which is evidently the same as that felt by the hand. Succeeding this, a louder sound and a shock synchronous with the pulse point out the contraction of the ventricle, which occupies only one-fourth part of the time." The diagnosis based on these signs was ossification of the mitral valve with slight hypertrophy of the left ventricle. Subsequently other writers confirmed these observations of Laennec and Fauvel, and to-day the signs regarded as characteristic of stenosis of the mitral orifice are a murmur limited to the neighborhood of the apex, of a harsh, churning character, and presystolic in time, a thrill or tremor which is felt at the apex before the cardiac impulse, an increased area of dulness extending especially to the right, and often accentuation of the second pulmonic sound, and a reduplication of the second sound at the apex. While these signs are undoubtedly reliable in most instances, it cannot be denied that mistakes are not infrequently made, on account of a too absolute faith in their infallibility. The murmur is not always confined to the mitral area; it is not always, strictly speaking, presystolic in time, and it is now well known that lesions other than mitral stenosis are sometimes accompanied by a presystolic murmur and thrill. Reduplication of the second sound

[1] Read at a meeting of the Stillé Society.

[2] Archives générales de Médecine, 4ème série, tome 1, 1843.

[3] Quoted by Fagge in his Practice of Medicine, 1886.

at the apex is not peculiar to mitral stenosis, and it may be absent when the latter is present, and finally, accentuation of the second pulmonic sound is common to all conditions attended with increased tension in pulmonary circulation, and, therefore, cannot be regarded as of great value in the diagnosis of mitral stenosis.

The murmur is usually best heard a little to the right of the apex, sometimes over the fourth left intercostal cartilage, and is quite variable in its distribution. It is true that, in many instances, the area of transmission is extremely limited, sometimes being confined to a circle less than an inch in diameter. I have frequently noted the systolic murmur of an associated mitral insufficiency, which was completely overshadowed at the apex by a loud, rolling, presystolic bruit become distinctly audible in the axilla, where the latter murmur could no longer be heard. At other times, however, the murmur of mitral stenosis is transmitted over a wide area, often well up into the axilla or around to the back. At the meeting of the Association of American Physicians, held in June, 1895, Griffith reported seven cases, in which a mitral diastolic murmur was widely transmitted; in one two and one-half inches behind the posterior axillary line, two to the midaxillary line, and four as far as the posterior axillary line. All were heard high up in the axilla. In some instances, in my experience, the presystolic murmur has been transmitted to a point near the inferior angle of the scapula, when it has been inaudible in the axilla. It is very evident, therefore, that an extended area of transmission in an apical murmur should not be construed as negative evidence when other signs and symptoms point to the existence of mitral stenosis.

In typical cases of mitral stenosis the murmur is of a rough, rasping character, begins in the presystolic period, increases in intensity towards the close of diastole, and finally ends in an abrupt rap, which represents the first sound of the heart, and is therefore synchronous with the ventricular systole. The first sound, although louder than normal, has a distinct valvular quality, and therefore often closely resembles an accentuated second sound. I have frequently known students to regard it as the second sound of the heart, and in consequence mistake a diastolic bruit for one that was systolic. I am inclined to regard this loud and abrupt rap, into which the presystolic murmur merges, as one of the most characteristic features associated with mitral stenosis. Even in the absence of the murmur the phenomenon is highly suggestive.

The cause of this intensified first sound at the apex has been the subject of considerable discussion. Broadbent[1] believes that it is produced in the walls of the left ventricle, and attributes it to the imperfect

[1] American Journal of the Medical Sciences, January, 1886.

distention of that chamber and the lack of resistance encountered at the beginning of systole. Strümpell[1] assigns as a cause the relatively great difference between the abnormally slight tension of the valve in diastole, in mitral stenosis, and its high tension in systole. Dickinson[2] thinks that it is due to the forcible closure of the mitral flaps. Sansom holds that it is not produced in the left ventricle, but in the right, and ascribes it to the sudden tension of the tricuspid valve, caused by the strong right ventricle; and this view seems the most reasonable when we consider, on the one hand, the relatively small size of the left ventricle in many cases of mitral stenosis, the rigid state of the mitral curtains, the contracted chordæ tendineæ, and, on the other hand, the large size of the right ventricle, and the increased tension to which its valves must be subjected in systole. Murmurs occurring in the diastolic period, and resulting from diseases other than mitral stenosis, are, as a rule, not reinforced as they progress, and do not end abruptly in an intensified first sound; on the contrary, they usually become softer as they progress, and may become inaudible before reaching the systolic period.

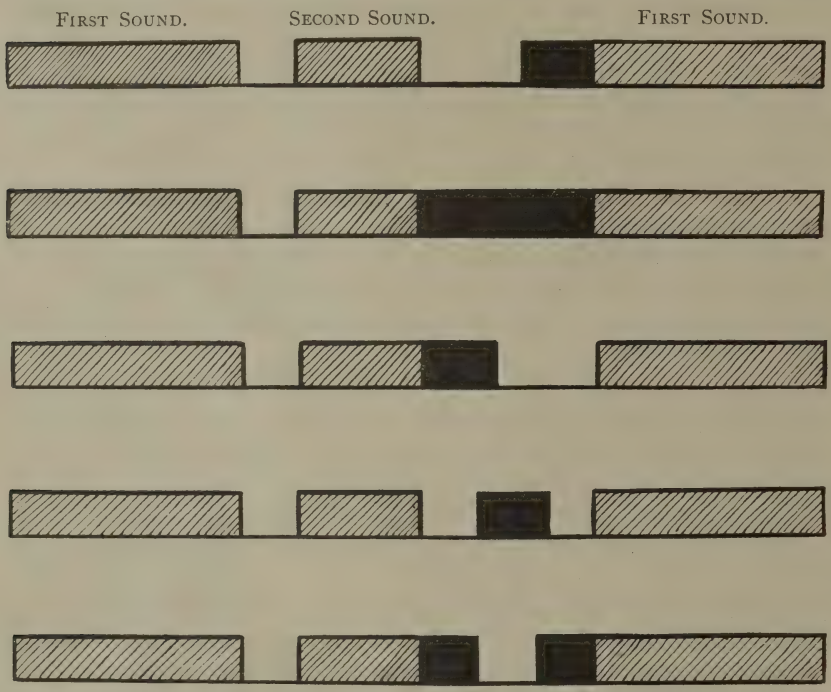
In no other valvular disease is the murmur so variable in the time of its appearance. In many cases it does not appear at the end of diastole, and terminate abruptly in systole, but occupies the whole of the diastolic period, beginning with the second sound and ending with the first. In sixty cases analyzed by Graham Steele[3] the murmur was purely presystolic in only 50 per cent.

In some cases the murmur is purely diastolic,—that is, it begins immediately after the second sound, but occupies only a portion of the diastolic period, an interval elapsing before the first sound. Again, the murmur may be mesodiastolic,—that is, it may begin sometime after the second sound and cease sometime before the first sound. According to Gee, the murmur is occasionally double, both diastolic and presystolic, with a distinct interval between its two parts. As a rule, the early diastolic and mid-diastolic murmurs do not persist, but alternate with a murmur which is purely presystolic. The following diagrams illustrate variations in type manifested by the murmur according to the position which it occupies in the diastolic period.

Another peculiar feature of the presystolic murmur is its tendency to disappear. Usually this disappearance is temporary, but occasionally it is permanent. Like other murmurs, it may be entirely absent during perfect repose, and made audible only after some slight exertion, such as holding the breath for a few seconds, or elevating the

[1] A Text-Book of Medicine, 1891.
[2] Lancet, October 1, 1887.
[3] Medical Chronicle, September, 1895.

arm. Again, both the murmur and the second sound at the apex may become inaudible towards the close of the disease, leaving an abrupt first sound or a blowing systolic murmur as the only signs to be obtained upon auscultation of the mitral area. In such cases the disappearance of the murmur may be due not simply to weakness of the heart, but to the actual removal of the obstruction through dilatation of the ventricle. Some years ago I had under my care a young girl, who had, as a sequel to chorea, an affection of the heart, which presented, in a most typical way, all of the physical signs of mitral stenosis; a few weeks before death, which occurred suddenly, the presystolic murmur and thrill completely disappeared, leaving behind, at the apex, a soft, blowing, systolic murmur. At the autopsy the mitral leaflets



were found to be somewhat thickened and contracted, but the chief feature was the enormous dilatation of the mitral orifice. A similar case has been reported by Musser. Apart from the conditions to which allusion has first been made, the murmur of mitral stenosis may disappear from time to time in the most erratic manner. This disappearance does not seem to be dependent upon any special change in the circulation, and, so far as I know, no satisfactory theory has been advanced to explain the phenomenon.

While a diastolic or presystolic murmur at the apex is highly characteristic of mitral stenosis, it can no longer be regarded as pathognomonic. There are at least four or five other conditions which yield the same physical sign. Thus, it may be elicited in the following conditions:

(1) Aortic regurgitation.
(2) Adherent pericardium.
(3) Simple dilatation of the left ventricle.
(4) Aneurism of the heart.
(5) Anemia.

In 1862 Flint[1] reported two cases, in which he had detected, during life, a presystolic murmur at the apex, but in which no lesion of the mitral valve was detected post-mortem. According to Flint[2] the murmur in these cases is due to rapid filling of the left ventricle, which floats the mitral leaflets away from the ventricular walls, and causes them to be thrown into vibration by the current of blood coming from the auricle. He says: "The distention of the ventricle is such that the mitral curtains are brought into coaptation, and then the auricular contraction takes place; the mitral direct current passes between the curtains, thus, in contact with each other, throws them into vibration, and gives rise to the characteristic blubbering murmur." Maguire[3] suggests that the murmur is due to vibrations transmitted to the apex from the anterior mitral leaflet, the latter being caught between two converging currents, both entering the ventricle, one from the aorta, the other from the auricle. Sansom inclines to the belief that the murmur is due to the impingement of the regurgitant aortic current on the anterior mitral leaflet in consequence of which either the valve itself is thrown into vibration, or the mitral orifice is practically narrowed by bulging of its valve. Phear[4] is of the opinion that either shortening of the chordæ tendineæ, or simple dilatation of the left ventricle, by narrowing the mitral orifice, is capable of producing a presystolic murmur at the apex, provided the auricular contractions are sufficiently strong. He says: "With shortened and thickened chordæ tendineæ the mitral valves are held permanently in the position which, in the normal heart, they are made to occupy rhythmically by the contraction of the musculi papillares; this practically amounts to a narrowing of the aperture through which the blood has to pass, and, given a fair auricular contraction, will be attended during life by a presystolic mur-

[1] American Journal of the Medical Sciences, July, 1862.
[2] American Journal of the Medical Sciences, Vol. i, 1886.
[3] Medical Chronicle, Vol. xii, 1890.
[4] Lancet, September 21, 1895.

mur, although post-mortem it may be found possible to introduce as many fingers through the mitral orifice as in the normal heart." Concerning the part played by simple dilatation, he writes: "As the cavity gradually expands the two sets of musculi papillares, from which the chordæ tendineæ spring, are displaced away from the ring to which the mitral valve is attached, and at the same time become separated from each other. The downward displacement tends to put the valve on the stretch lengthways, and to draw the flaps together; the effect of the lateral movements is to produce tension along the free edges of the valves. In this way the curve which is formed by the margin of each flap is straightened, and the aperture included by the flaps is elongated and narrowed." He assigns as a cause for the infrequency of presystolic murmurs in ventricular dilatation the feeble contractions of the auricle since dilatation of the ventricle. It is evident, therefore, that the difficulty of excluding mitral stenosis in such cases is sometimes very great; this is particularly true when the murmur of aortic regurgitation is audible, as it may be in some instances, only at the apex. Under these circumstances a distinct enlargement of the heart towards the right, an apparent reduplication of the second sound at the apex, a murmur that is harsh in quality and is reinforced as it progresses towards systole, and, finally, a short and loud first sound with a valvular quality would indicate mitral stenosis.

Adherent pericardium may produce not only a presystolic murmur, but also a distinct thrill. The pericardium was adherent in twenty of the forty-six cases collected by Phear, in which a presystolic apex murmur was present without mitral stenosis. The antecedent history, retraction of the precordial region or of the posterior or lateral portions of the thoracic walls, a posterior systolic impulse will in many make the diagnosis of adherent pericardium reasonably sure. According to Broadbent ("Adherent Pericardium," 1896), a weak pulmonary second sound, where there is evidence of hypertrophy of the right ventricle, is very important, as it indicates that the cause of the hypertrophy of the right ventricle was probably not back pressure, through the lungs, due to left ventricle trouble, but some intrinsic cause, perhaps adherent pericardium.

In a very few instances a presystolic murmur has been present during life, but at the autopsy neither aortic regurgitation nor adherent pericardium has been found. In most of these cases the heart has been considerably enlarged, and occasionally shortening and thickening of the chordæ tendineæ has been noted. While hemic murmurs are usually systolic in time, and best heard over the pulmonic area, they occasionally occur during diastole, and are distinctly audible over the mitral area. Moreover, there may be in anemia accentuation of the

pulmonary second sound and a palpable thrill over the apex. As a rule, there will be little difficulty in associating these unusual forms of hemic murmurs with their true cause. Their character, the *bruit de diable*, and other evidences of anemia, in the absence of hypertrophy of the right ventricle, will usually lead to their early recognition.

Aneurism of the heart occasionally gives rise to physical signs similar to those elicited in mitral stenosis. Kasem-Beck[1] has recorded such a case. The patient was a man, aged 63, who complained of severe dyspnea and pains in the chest, extending to the arms. Physical examination revealed a presystolic murmur, with a muffled first sound at the apex, accentuation of the second sound, and enlargement of both ventricles. The diagnosis was mitral stenosis; but at the autopsy no constriction was found. There was, however, near the apex of the heart an aneurismal dilatation, about the size of a small apple. Of course such cases are rare, and the difficulties in the way of a correct diagnosis are wellnigh insuperable.

According to Sansom, reduplication of the second sound of the heart is heard in more than one-third of all cases of mitral stenosis. Graham Steele, from an analysis of sixty cases of mitral stenosis, concludes that it occurs in about two-thirds of the cases. This reduplication is generally ascribed to asynchronous tension of the two sets of sigmoid valves, the aortic and pulmonary. Sansom, however, contends that the phenomenon is not a true reduplication, and prefers to term it the double-shock sound, the first element of which, he believes, is the normal second sound often accentuated as to its pulmonary artery component; and that the second element is the sound of tension produced by the forcible entry of blood into the ventricle, the shock being communicated either to the wall of the ventricle or to the anterior curtain of the mitral valve, close to the aortic cusps, and thence to the sternum, and especially its left border.

The presystolic thrill, while present at some period in nearly every case of mitral stenosis, is, as we have seen, not peculiar to that affection. It may occur in aortic regurgitation, adherent pericardium, and even in anemia. It should be borne in mind that a forcibly beating heart may impart to the chest wall a vibration which simulates a genuine thrill. I have frequently seen students fall into error in such cases. This false thrill is probably due, as Rolleston suggests, to the pulsation of the chest wall being interrupted by the rigid ribs. Unlike the genuine thrill, it disappears when the fingers are separated, and placed between the ribs over the intercostal spaces.

[1] Centralblatt für innere Medicin, February 13, 1897.

A CASE OF MYELITIS FOLLOWING INFLUENZA.

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While influenza is a rather frequent cause of inflammatory diseases of the nervous system, it most frequently attacks either the meninges, brain, or peripheral nerves. The spinal cord is comparatively exempt. L. Michalis (*Deutsche medicinische Wochenschrift*, 1899, No. 7), in a recent paper, has found in the literature only five cases of myelitis following influenza, to which he adds one.

The following case has come under the writer's observation: J. S., a merchant, 52 years of age, of good habits, and no venereal history, had always enjoyed good health until he had what was apparently an ordinary attack of influenza,—*i.e.*, pains in the bones and head, fever, sore throat, cough, etc. About one week after this he began to lose power in the legs, which progressed until in two weeks he had complete paralysis of the left leg and nearly complete of the right. At this time he also lost control of the bladder and rectal sphincters, but was conscious of the desire to urinate or defecate. Now and then the legs would twitch and jump involuntarily. There was no pain, but he said that he experienced a "feeling of numbness about the loins." As far as can be learned from the patient, there were no trophic symptoms. In three weeks improvement began. He was first seen by the writer four months after the onset. At that time he could walk, with the aid of a cane, the left leg being the weaker. Both legs were somewhat spastic. No muscular atrophy; the knee-jerks were increased, and there was slight ankle-clonus. The plantar and cremasteric reflexes were sluggish. There was inability to hold the urine when the desire came to pass it, but the bowel could be controlled to some extent, and he afterwards became constipated. The urine was alkaline, contained mucus, but no pus or albumin. Sexual power was absent. No sensory paralysis or pain was present, but paresthetic sensations in the legs were at times complained of. Vasomotor and trophic symptoms were absent.

During the following six months the patient improved until he could walk considerable distances without support. The symptoms then remained at a stand-still for a period of about three months, when he had a slight exacerbation, and was again compelled to use a cane.

Shortly after this he sustained a severe fall from a trolley-car, and the symptoms of a traumatic neurosis became added to those of the myelitis, which also became more marked. Shortly after this he disappeared from observation, and his present condition is unknown.

THE TECHNIQUE OF THE OPERATION OF CELIOTOMY AS PRACTISED AT THE UNIVERSITY HOSPITAL, AND THE REPORT OF ONE HUNDRED AND FORTY-ONE CONSECUTIVE CELIOTOMIES PERFORMED AT THE UNIVERSITY AND GYNÉCÉAN HOSPITALS, WITH THREE DEATHS.

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The operation of celiotomy for the relief of gynecological diseases, when performed with favorable operative surroundings and by a well-trained abdominal surgeon, has, at the present day, come to be looked upon as an operation associated with comparatively little danger to life. The published mortality of a long series of all kinds of cases by a number of the best operators throughout the civilized world is estimated at not more than 5 per cent. The study of the etiology of infectious diseases and traumatic infection by the bacteriologist; the development of the principles of asepsis and antisepsis; the present degree of perfection in the technique of operation and the improvement of operative methods by the surgeon; and particularly also the specialization of abdominal surgery during the last twenty-five or more years has made it possible for these admirable results to be obtained, and women have been relieved of much suffering.

Although the expert abdominal surgeon has attained a very high degree of perfection in rigidly practising aseptic and antiseptic technique, and his mortality is small, he rarely goes through a year's work without seeing one, two, or perhaps more of his patients die from septic infection. The conscientious and painstaking operator never becomes accustomed to such most unfortunate accidents, nor can he rid himself of a feeling of blame in each individual instance; for it is quite truly

said that the surgeon's acts determine the fate of a flesh wound, and that septic infection and suppuration are due to his technical faults of omission and commission. Therefore most earnest, untiring, and unceasing efforts are daily being made by the conscientious surgeon towards the acquirement of a technique so absolute in the prevention of introduction and the destruction of pyogenic organisms that he may be enabled, also, to save these few who now die from septic infection, and more relieve his mind of the constant worry, the fear of this danger. For this reason the technique of the operation of celiotomy is ever new, and of sufficient interest to warrant the description of that practised by each individual operator who has made a careful study of the principles of asepsis and antisepsis, and of other operative technique, and applied them in his practice. In this paper I shall, therefore, describe in detail the technique of the operation of celiotomy as practised by me at the University Hospital, and make a short, formulated report of 141 consecutive celiotomies with three deaths.

The Preparation of the Patient.—The patient who presents herself for the operation of celiotomy at this hospital is, when immediate operation is not demanded, placed in bed and upon a preparatory treatment lasting from three days to a week. The object of the preparatory treatment is rest, stimulation of the heart, circulatory system, and the various secretions, and to give the surgeon an opportunity to study her gynecological disease, become familiar with her general physical condition and her peculiarities. She is usually referred from a physician living outside of the city, has travelled a long distance, is weary from the journey, and a few days' rest will often have a distinct influence in making it easy for her to withstand the shock of operation. Many are nervous, disturbed, fearful of operation, and unfamiliar with their new surroundings, and are made more content by this precaution. Two careful pelvic and abdominal examinations are made, and each is recorded in a book kept for this purpose. The first examination is made a short time after the patient's admission to the hospital, and before the bowels have been opened and a vaginal douche administered. The second examination is made twenty-four hours preceding operation. By this plan only can a very accurate diagnosis be made and mistakes avoided; the second examination always being much more satisfactory than the first. The surgeon makes a physical examination of the chest, and if there is any question of doubt as to the presence of a disease of the heart or lungs, which would contraindicate operation, a specialist in internal medicine is called in, and, assisted by his opinion, the further course of treatment is determined upon. Should the patient have bronchitis, operation is deferred until it is cured; and if this is not possible, she is placed on a treatment, and asked to return to her home

until all pulmonary symptoms have disappeared. A chemical and microscopical examination of the urine is made and recorded. Tincture of digitalis, ♏ 10; and strychnia sulphate, grain 1/20, are given three times daily, and, where there is an indication, a diuretic is administered. The bowels are opened daily. Experience has taught us that these precautions avoid mistakes, make the convalescence easier, and distinctly influence the results. She receives a daily bath and a vaginal douche of one gallon of hot water night and morning.

The special preparation of the patient, the sterilization of the abdominal surface, the external genitals, and the vagina, and the emptying of the gastro-intestinal tract is begun twenty-four hours before operation. Drachm doses of Rochelle salts, dissolved in half a tumbler of water or soda water, are administered every hour, until the bowels begin to move freely. Five or six doses are usually sufficient. During the twenty-four hours preceding operation the diet consists of light, easily digested, concentrated nourishment, such as milk, butter-milk, soft-boiled eggs, rare beef, soup, coffee, tea, and whiskey, if necessary.

Unless the patient is very weak, no food is given on the morning of the operation. If her condition does not warrant such abstinence, she is given a glass of milk, butter-milk, coffee, or a milk punch. Eighteen hours before operation she is given a warm bath from head to feet. The abdomen, from the ensiform cartilage to the pubes, is scrubbed with a nail-brush. The pubes and the external genitals are shaved. Special care is devoted to the umbilicus and external genitals. After the bath the patient is dressed in a clean flannel undershirt and night-gown, the hair is plaited, and she is placed in a clean bed. The nurse, who has prepared herself as shall be described in the description of personal asepsis, then washes or scrubs the abdominal surface from the ensiform cartilage to the pubes, and from flank to flank, and the upper third of the anterior aspect of the thigh, first with turpentine, second with green soap, third with sterile water, followed by a 1 to 2000 bichloride of mercury solution. Finally the abdomen is covered with a large wet bichloride dressing (1–2000), which is allowed to remain in position until the next preparation. It is of importance that the dressing be well wrung out before applying, so as to prevent the patient from catching cold. For the preparation of the external genitals and vagina the patient is drawn down to the edge of the bed, the anus, the external genitals, and the vagina are scrubbed with green soap. The vagina is washed throughout. The nurse does this by retracting the perineum with a Sims speculum, and scrubs the vagina, the fornicies, and the vaginal cervix with cotton held in forceps. She inserts her finger slightly into the cervical canal, and is careful that the

vaginal fornicies and the fold of the external genitals are thoroughly cleansed. This scrubbing, which is thoroughly practised and continued for twenty minutes, is followed by a vaginal douche of hot sterile water, or as much water as is necessary to completely rid the surfaces of soap. Then a douche of two quarts of bichloride of mercury solution (1–2000) is given, and a light vaginal tampon, wet with bichloride solution, is introduced as far as the cervix. The following morning, the morning of operation, the abdomen is again cleansed as before with turpentine, green soap, and sterile water, followed by scrubbing with ether and then alcohol, then bichloride of mercury solution, and again a wet gauze bichloride dressing is applied and held in place by a special form of dressing and binder. This dressing is not removed until the patient reaches the operating table. The patient is given another large hot douche of sterile water, followed by a bichloride of mercury douche, and a tampon of gauze is introduced as before. The vagina is prepared in every instance, even though the operation is to be confined to the abdominal route alone. The lower bowel is thoroughly emptied by an enema of soap and water three hours before operation. The patient is catheterized immediately before entering the operating room. In the preparation of the abdominal surface and vagina strict asepsis is practised, a stiff-bristle surgeon's scrubbing-brush is used, but although the scrubbing is long continued, care is taken not to irritate or excoriate the skin. The preparation is always superintended by the chief and specially trained nurse of the department.

Preparation of Dressings, Towels, etc.—The operating cloths, aprons, sheets, towels, the operating clothing of the surgeon, assistants, and nurses are sterilized by superheated steam in a Sprague sterilizer. The temperature of the sterilizer is maintained at 240° F. under fifteen pounds pressure for two hours. All dressings, gauze, drains, etc., are sterilized in the same sterilizer for three consecutive days, and for two hours each day. Each material or article is inclosed in a muslin bag and marked. They are not tightly packed, so that all parts may be exposed to the same degree of temperature. They are kept in the muslin bags in glass jars between sterilizations in a clean place; and after the last sterilization they are folded in a sterilized sheet and placed on a sterile glass table in the operating room, from which position they are not disturbed until used.

Gauze sponges are employed and are made of various sizes by sewing together eighteen layers of plain absorbent gauze. The edges are folded in and hemmed to prevent the escape of loose threads in the peritoneum. Seven of these sponges are employed at each operation; one 3 by 3 inches; one 10 by 7 inches; and five 5 by 5 inches. This constitutes a set, and two such sets are prepared for each operation, al-

though only one set is usually used. The number of sponges are counted twice before sterilization, once immediately before operation, and twice after the abdomen is ready to be or is closed; for accuracy in regard to sponges is of the greatest importance.

Preparation of Ligatures and Sutures.—Three sizes of twisted silk are used: heavy silk (No. 7) for ligature of the large arteries; medium silk (No. 4) for ligature of smaller vessels and for various suturing in the abdomen; fine silk (No. 0) for the peritoneum and intestinal suture. The silk is rolled on glass spools, or on cores of gauze, and placed in glass tubes plugged with cotton. That on the cores of gauze, the medium and fine silk, is one and one-half feet in length and threaded with the proper needle. The silk is sterilized by fractional sterilization in the Sprague sterilizer for forty minutes, on two consecutive days, immediately before operation. Silkworm gut is used for suture of the abdominal incision in case the "through-and-through" or interrupted mass suture is employed. It is of the heaviest and longest size, and is sterilized by boiling with the instruments at the time of operation. Catgut is sometimes employed for suture of the facia of the rectus muscle in closing the abdominal wound, and is prepared by the Formalin method, placed in absolute alcohol, in a metal cylinder and sterilized in the Sprague sterilizer. I believe this method of preparation is to be relied upon, and the catgut gives satisfaction in every way. Silver wire, however, is usually employed for suture of the facia. It is prepared by boiling with the instruments.

The Water.—The water used during the operation for washing the wound, rinsing the sponges, the hands of the operator, assistants, and nurses, and making the bichloride of mercury solutions, etc., is drawn from the Kny-Sprague water sterilizer in the department. It is carried to the operating room in sterilized and covered earthen vessels. The process of preparation is the filtration, and the heating of the water by steam to 250° F., under fifteen pounds pressure.

Sterilization of Instruments.—Instruments, glass and rubber drainage-tubes, catheters, and any rubber appliance is sterilized by boiling for thirty minutes in a 1 per cent. solution of the carbonate of soda. They are placed on a convenient tray, and boiled in an instrument-sterilizer heated by gas. Immediately before operation the tray containing the instruments is carried to a sterilized tin receptacle containing a sterilized solution of the carbonate of soda. Appliances that are impaired by moist heat or steam are sterilized by thoroughly washing, scrubbing with green soap, rinsing, scalding with boiling-hot water, and soaking in a solution of the bichloride of mercury (1–1000). The same cleansing is practised after operation.

Apparatus.—All apparatus, such as basins, tables, etc., are prepared

by thoroughly scrubbing with Sapolio and water, scalding with boiling hot water, and washing with a solution of the bichloride of mercury (1–1000). Glass top tables and the Bolt operating table are used. The operating table is covered with a sterile folded sheet.

The Operating Room.—The night preceding operation the walls, floors, and ceilings of the operating room are flushed from top to bottom with a hose, mopped with a wet cloth, and then the amphitheatre is wiped throughout with a solution of the bichloride of mercury (1–1000). The railing immediately surrounding the amphitheatre is covered with sterile sheets wet with a bichloride of mercury solution. The room is then closed, and not opened until the beginning of the immediate and final preparation of apparatus. No one enters the amphitheatre of the room after the primary cleansing, except those prepared to assist at the operation.

Operator, Assistants, and Nurses.—There are three assistants and two nurses. The first assistant stands opposite the operator, and assists by sponging, holding a retractor, or other instruments, or by following the surgeon's directions. He avoids introducing his hands into the wound or abdominal cavity as much as possible.

The second assistant stands beside the operator, and cares for the threading and handling of sutures and ligatures. The ligatures are handled by forceps as much as possible. One nurse washes the sponges and hands them to the first assistant or operator, and attends to the towels and dressings; while the other nurse, under the direction of the first, attends to the filling of vessels with water, elevating and lowering of the operating table, and minor details. The third assistant administers the ether. He must of necessity be a trained anesthetizer. The operator, assistants, and nurses take a daily bath, and on the day of operation the hands, arms, shoulders, and axillas are scrubbed in the bath as though preparing for operation. The hair is also washed in this bath. They under no circumstances attend any patients suffering with a septic or infectious condition. If they have done so, they are not allowed to assist at an operation for from five days to a week; during which time they practise sterilization of the hands thoroughly once daily. The operator carries out the same precautions. The operator, assistants, and nurses enter the operating room some time before (certainly a half hour) the operation, dressed in sterile clothing with sleeves rolled up almost to the axillæ. Running hot filtered water in a scalded stationary basin (as hot as the hands will bear) is employed for preparing the hands and arms. Ivory soap is used. A stiff-bristle nail or surgeon's brush, sterilized by steam heat, is employed for scrubbing the hands. The finger-nails are kept pared down to opposite the matrix, or as far as possible; so that no dirt can at any time collect

beneath the nail. The edges of the nails are kept round and smooth. The tissue covering the base of the nail is pushed back sufficiently to secure cleanliness. The hands and arms are scrubbed hard, energetically, and continually for at least twenty minutes, or until the patient is etherized and placed upon the operating table. The soap is repeatedly washed off and renewed. Particular attention is paid to scrubbing beneath and about the finger-nails, about the wrists and folds of the hands, not escaping the surfaces between the fingers. The scrubbing is often continued until the skin becomes slightly macerated, like those of a washerwoman. In the midst of the scrubbing, after ten minutes, the surfaces beneath the nails and at the base of the nails are lightly gone over with a metal nail-cleanser, which stirs up and makes more easy the separation of bacteria, which are so apt to be found here, and are removed by again continuing the scrubbing. The hands are then scrubbed free from soap, scrubbed for one minute in 95 per cent. alchohol, and finally scrubbed in a 1 to 1000 solution of the bichloride of mercury for three minutes. Then a large sterilized gown is put on the operator, each assistant and nurse, the sleeves being tied above the elbow. The first assistant, with the first nurse, then makes the final preparation of the abdomen, removing the dressing, scrubbing the surface with green soap, water, ether, alcohol, and a solution of the bichloride of mercury (1–1000). Sterile towels and sheets are then placed about the site of operation by the operator. The assistant and nurse then scrub and antisepticize their hands for a minute or two again, and rinse them in sterile water, put on the sterile gown, and the operation is begun, maintaining the same degree of asepsis throughout. Handling of tissue is avoided as much as possible. Metal retractors are used for separating the wound and forceps for handling tissue in suturing. No door is opened or person allowed to leave the operating room until the abdomen is closed and the dressing and binder applied. When a drainage-tube is introduced, it is cared for by the second nurse assisting at the operation, and strict asepsis is maintained during its care until it is removed. The dressing of the abdominal wound is composed of twelve layers of sterile gauze, covered by a large sterilized abdominal pad, held in position by a six-tailed abdominal binder of flannel. This is placed and pinned in position by the operator and assistant. The first two layers of gauze are held over the wound by a sterile preparation of collodion, except when a drainage-tube is introduced.

The most rigid discipline is practised in the operating room. The personal asepsis and the asepsis of every detail of the technique is continually watched and criticised. The work is systematically divided among the assistants and nurses, and each attends strictly to his or her

own department and nothing else. The early presence of the assistants at the operation is insisted upon; the rule being that every one is to be in the operating room a half hour before the set time of the beginning of the operation. No one is allowed to touch anything that has not been sterilized.

It is the rule to consider no part of the aseptic technique "good enough," every assistant and nurse is made to seriously feel the responsibility of their position, and in their daily duties to be ever conscious of this responsibility and avoid personal infection.

The Treatment after Celiotomy.—At the termination of the operation the patient is immediately removed to a recovery room, and placed in a bed covered with sterile sheets. Hot cans are placed about her and any necessary stimulation administered hypodermically. If there is profuse sweating, a hypodermic of 1/100 of a grain of atropine is given. A special nurse is required for the first two or three days. The patient lies upon her back for the first four days. Unless the operation be a ventrosuspension, she may be moved partly upon either side after this time by the placing a pillow behind her for support. After the effect of the anesthetic has passed off the patient is made more comfortable by raising the knees over a pillow. If she complains bitterly of backache, the pain is relieved somewhat by slipping a folded sheet or towel beneath the small of the back. Thirst during the first eighteen hours is relieved by moistening the tongue and lips with a cloth wet in cold water or wrapped about a piece of ice. Nothing is administered by the mouth aside from this for eighteen hours. At the end of this time small quantities of hot water or soda water (one drachm) are given every half hour, and gradually increased as it is found to be retained by the stomach. If pain is severe or the patient nervous and sleepless, a small dose of morphine (grain $\frac{1}{6}$) is administered hypodermically, and repeated once during the first night.

Each celiotomy case is usually given one dose of morphine, even though they may have no pain. It has been found to do no harm, and affords the patient great comfort. At the end of twenty-four hours purgation is begun by giving one-half grain doses of calomel every hour until six doses are given, followed by two or three drachm doses of Rochelle salts. Three or four hours after the last drachm of salts is taken, or earlier, if the patient feels inclined to have a bowel movement, a soap-and-water enema, containing a drachm of turpentine, is given. If this enema is not effectual, it is repeated after three or four hours. Finally, if this one fails, a high compound enema, composed of an ounce of Epsom salts, an ounce of glycerin, two drachms of turpentine, and eight ounces of warm water, is given. The first or second enema, however, is nearly always sufficient to open the bowels. If the patient is

at any time uncomfortable and unable to pass flatus freely, she is relieved by the introduction of a rectal tube. Vomiting caused by the anesthetic is usually much relieved by placing a large, strong mustard-plaster over the epigastrium for a few minutes. The patient is encouraged to pass her urine voluntarily, and if she cannot accomplish this, hot moist cloths are applied to the external genitals, she is placed on a bed-pan filled with steaming water, or other methods to induce voluntary urination are tried. If they fail, then the urine is drawn eight hours after operation by means of a sterilized catheter and under antiseptic precautions. Food is administered as soon as the bowels are opened, or at the end of forty-eight hours. Small quantities of butter-milk, milk, or milk and lime-water, soup, soft-boiled eggs, etc., are given frequently, and after twenty-four hours more she is allowed the ordinary soft diet of the hospital. The temperature usually remains below 101° F. during the first forty-eight hours, and drops to about normal soon after the bowels are open. The maximum temperature is usually observed during the time of purgation, the second twenty-four hours. The pulse, as a rule, remains below 100, but may in a successful case reach 120 or 130. Strychnia sulphate, grain 1/20, is given hypodermically every four hours during the first two days; longer if necessary. Drainage-tubes or the gauze drain are removed at the end of twenty-four hours, unless the bowel is injured, when it is removed at the end of three days. A soft-rubber tube replaces the drain for two days, being removed so as to allow the tract to be obliterated from the bottom. A few hours after the bowels are open she is returned to the general ward. The first dressing is made and the sutures removed two weeks after operation. All patients are kept in bed for three weeks, allowed to sit up in bed for two days, and then get out of bed, and leave the hospital three or four days later, or as soon as they are strong enough.

This aseptic and antiseptic technique and after-treatment is that employed in the usual case, and is of course subject to slight modifications in the complicated cases.

The following series of 141 consecutive celiotomies were performed at the University and Gynécean Hospitals: Bilateral salpingo-oöphorectomy was performed 22 times; unilateral salpingo-oöphorectomy, 22 times; ventrosuspension of the uterus, 20 times; ventrosuspension of the uterus with plastic operations on the cervix, vagina, or both, 33 times; supravaginal abdominal hysterectomy, 18 times; abdominal pan-hysterectomy, 2 times; myomectomy, 1 time; celiotomy for the cure of ventral hernia, 5 times; exploratory celiotomy for various abdominal diseases, 8 times; Sanger's operation for the elevation of one or both ovaries, 2 times; for the enucleation of paro-

varium cysts, without removal of tube or ovary, 2 times; for tubercular peritonitis, 2 times; appendectomy was performed 3 times, and for the removal of an ovarian abscess with communicating fistula into the bowel, 1 time.

Bilateral salpingo-oöphorectomy was practised for the following diseases: Chronic endosalpingitis and perisalpingitis and oöphoritis with closure of tube ostium, 2 times; chronic interstitial salpingitis and perisalpingitis, 1; hydrosalpinx and perisalpingitis, 3; chronic pyosalpinx and oöphoritis, 9; acute puerperal or gonorrheal pyosalpinx, 5; and tuberculosis of the Fallopian tubes, 1.

Unilateral salpingo-oöphorectomy was practised for the following: Chronic endosalpingitis, perisalpingitis, and oöphoritis, 8 times; chronic interstitial salpingitis, 2; pyo-hydrosalpinx, 1; dermoid cyst, 2; dermoid cyst with twisted pedicle and peritonitis, 1; multilocular oöphritic ovarian cyst, 2; parovarium cyst, 1; follicular ovarian cyst, size of walnut or orange, 3; tubo-ovarian abscess, 1; unruptured extrauterine pregnancy, 1; and ruptured extrauterine pregnancy, 1.

Supravaginal abdominal hysterectomy was practised for the following: Fibroid tumor of the uterus (hysteromyomectomy), 10; bilateral multilocular ovarian cyst, 1; pyosalpinx and metritis, 7.

Pan-hysterectomy (abdominal) was practised for carcinoma of the cervix once, and once for carcinoma of the body of the uterus.

Exploratory celiotomy was practised for the following: Advanced carcinoma of the ovary, 4; syphilitic mass in Douglas's cul-de-sac, 1; abdominal urinary fistula, 1; abdominal fistula communicating with old pedicle, 1; and separation of intestinal adhesions, 1.

Appendectomy: For acute suppurative appendicitis, 1; chronic catarrhal appendicitis, 1; and chronic obliterating appendicitis, 1.

The abdominal incision was closed by mass silkworm-gut suture, with silver wire or catgut to close the facia in fifty-nine cases, and by suturing the peritoneum with fine silk, the facia with silver wire or catgut and the skin with an intracutaneous silk suture in eighty-two cases.

A glass drainage-tube was introduced eight times and the gauze Miculitz drain with the rubber cundom covering or as a gauze pack, twelve times, 14¼ per cent. Drainage was introduced in cases of abdominal carcinoma with ascites in two cases, tubercular peritonitis two cases, because of intestinal injury in five cases; because of acute infection of the peritoneal cavity from acute pyosalpinx four times; in case of ruptured extrauterine pregnancy once; and for hemorrhagic oozing and possible infection of the peritoneal cavity in ruptured pustube six times.

Infection and more or less suppuration in the abdominal wound

occurred in eight cases. Six of these were due to a most persistent form of staphylococcus pyogenes albus, and were consecutive cases. Although the most rigid precautions and asepsis and antisepsis were practised daily, the organism remained on the hands of the operator and assistant without reinfection of the hands for a period of two weeks; showing an instance where it is impossible to free the hands from certain pyogenic organism.

Conservative operative methods, as opening of the abdominal tube ostium, separation of adhesions from tube and ovary, and elevation of one or both ovaries, were practised in ten cases where the tube and ovary might have been sacrificed. No ovary was removed for the so-called follicular degeneration of the ovary, except in those cases described, where the cyst was at least the size of a walnut, and destroyed the remaining ovarian tissue. All small follicular cysts were punctured. It was never found necessary to resect the ovary.

Intestinal injury or fistula was seen and repaired five times. No postoperative fecal fistula occurred.

No drainage tract persisted longer than ten days. Ventral hernia occurred in one case. The patient was a stout working-woman. The operation was unilateral salpingo-oöphorectomy and ventrosuspension of the uterus, and the abdominal incision was closed with fine silk, silver wire, and the intracutaneous suture.

Death followed operation in three cases, a mortality of 2.1 per cent. The first death was caused by pulmonary embolism on the sixth day after operation and after a normal convalescence. The operation was a hysteromyomectomy for a tumor that weighed about seven pounds. The patient was a very fat woman, she was in poor physical condition, had a goitre, and was thought to have Basedow's disease. The second death occurred on the fifth day after operation, and was probably due to a slow staphylococcus pyogenes albus infection. The operation was a myomectomy, and two tumors were removed; one weighing about two pounds, and the other a small nodule. This death occurred about the time the same organism was causing suppuration of abdominal incisions as described. The third death occurred after an exploratory celiotomy for advanced ovarian carcinoma on the second day after operation. The cause of death was exhaustion, as the patient was very weak before operation, and it was done as a last resort.

ON THE CLINICAL ESTIMATION OF THE QUANTITY OF HEMOGLOBIN IN THE HUMAN BLOOD.

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Late Resident Physician to the Samaritan Hosptal.

The following investigations were made by the writers to ascertain the amount of error in various instruments used for the clinical estimation of the quantity of hemoglobin in the blood. Many methods and instruments have been proposed and devised for this purpose, all enthusiastically praised by their respective originators. The amount of error in some of these instruments renders them useless for accurate research. Nevertheless, they have attained a totally undeserving reputation for correctness (and are used a great deal), as we will endeavor to demonstrate.

It is our purpose, in this paper, to point out to the busy physician the most trustworthy and inexpensive instruments for the estimation of hemoglobin; and we will first call attention to the specific gravity method, which is accurate, simple, and inexpensive. To perform this method a urinometer (graduated to 1060 or 1070), a jar (or wide test-tube with a base), a pipette, or medicine-dropper, and a few ounces of chloroform and benzol are required.

A mixture of benzol and chloroform is made approaching the normal specific gravity of the blood, if the patient is robust, or between 1043 to 1050 if the patient appears anemic. The finger is then pricked, without using pressure, and a drop of blood is drawn into the pipette or medicine-dropper, and gently placed in the mixture. If the drop of blood sinks, more chloroform is added from a pipette until it remains suspended in the mixture,—neither floating nor sinking; if it floats,

benzol is added until the same result is attained. The specific gravity of the mixture is now ascertained, and from it, by reference to the tables below, the amount of hemoglobin may be readily and quickly found. A number of other mixtures have been proposed for the method above, a series of solutions of glycerin and water, or water and sulphate of soda are prepared, each with a different degree of specific gravity, into which is placed a drop of blood as in the above method, using the solutions successively until the one is found in which the blood remains suspended; also a mixture of toluol and benzyl chloride, and others,—all of which are objectionable for obvious reasons. We have tried xylol and chloroform, which has no advantage over benzol and chloroform. This method of estimating the specific gravity of the blood was originated by Hammerschlag, following the method of Roy.

It is well to observe the following precautions in performing this method:

Make the estimation as rapidly as possible, on account of the mixture evaporating or gradually soaking into the drop of blood. We have found the mixture altered to the extent of ten or twelve degrees in a few minutes by evaporation on a warm day.

Do not allow air to gain entrance into the drop of blood.

Do not allow the drop of blood to sink more than half way to the bottom.

If these simple precautions are strictly observed, very accurate results will be obtained. After each estimation the mixture of chloroform and benzol may be filtered and used indefinitely.

The specific gravity of the blood varies greatly in different individuals in health (from 1041 to 1067), the strictly normal degree appears to be between 1055 and 1059. Lloyd Jones found that it is diminished after eating, is increased by exercise, and that it falls slowly during the day, and rises gradually during the night. Therefore the best time for the estimation is in the morning. Examinations of blood in von Jaksch's clinic, at Prague, show that intestinal hemorrhage, severe anemia, and prostration are attended with a fall in the specific gravity. Von Jaksch states that Siegel and Schmaltz have found that it varies with the proportion of hemoglobin, but not with the number of cells in the blood; he further states that this method may be used to replace the estimation of hemoglobin by expensive instruments, and after an extensive use of it we feel called upon to emphasize this fact.

Preyer gives the amount of hemoglobin as 14.00 grammes in 100 grammes of blood. This is high, the quantity being about 13.77 grammes.

The following tables of Hammerschlag and Schmaltz show the per cent. of hemoglobin corresponding to the specific gravity:

From Hammerschlag.

Specific gravity	1033–1035	= 25 per cent.—30 per cent.
" "	1035–1038	= 30 per cent.—35 per cent.
" "	1038–1040	= 35 per cent.—40 per cent.
" "	1040–1045	= 40 per cent.—45 per cent.
" "	1045–1048	= 45 per cent.—55 per cent.
" "	1048–1050	= 55 per cent.—65 per cent.
" "	1050–1053	= 65 per cent.—70 per cent.
" "	1053–1055	= 70 per cent.—75 per cent.
" "	1055–1057	= 75 per cent.—85 per cent.
" "	1057–1060	= 85 per cent.—95 per cent.

From Schmaltz (" Pathologie des Blutes," etc., Leipsic, 1896, using a direct weighing method).

Specific gravity	1030	= 20 per cent.
" "	1035	= 30 per cent.
" "	1038	= 35 per cent.
" "	1041	= 40 per cent.
" "	1042.5	= 45 per cent.
" "	1045.5	= 50 per cent.
" "	1048	= 55 per cent.
" "	1049	= 60 per cent.
" "	1051	= 65 per cent.
" "	1052	= 70 per cent.
" "	1053.5	= 75 per cent.
" "	1056	= 80 per cent.
" "	1057.5	= 90 per cent.
" "	1059	= 100 per cent.

In order to verify the correctness of these tables (Cabot mentioning in his " Clinical Examination of the Blood" that they are not accurate, and that further research is needed to make them so) we used a preparation of hemoglobin made especially for us by Armour & Co., of Chicago.

With this hemoglobin we prepared a solution (with normal salt solution) which contained 13.77 grammes of oxyhemoglobin (100 per cent.), and gave a specific gravity of 1059 exactly. With the spectroscope it gave the characteristic bands of oxyhemoglobin, and was easily reduced by $(NH_4)_2S$ to hemoglobin. We were very much gratified to obtain the following results, which confirm the accuracy of Schmaltz's table.

Table of Yarrow and Hitchens.

Specific gravity	1030	= 20 per cent.
" "	1035	= 30 per cent.
" "	1041	= 40 per cent.
" "	1042.5	= 45 per cent.
" "	1045.5	= 50 per cent.
" "	1048	= 55 per cent.
" "	1049	= 60 per cent.
" "	1051	= 65 per cent.
" "	1052	= 70 per cent.
" "	1053.5	= 75 per cent.
" "	1056	= 80 per cent.
" "	1057.5	= 90 per cent.
" "	1059	= 100 per cent.

We believe this is the first published verification of Schmaltz's table in this country. We therefore strongly recommend the specific gravity method of estimating the quantity of hemoglobin in the blood as being the best for busy physicians and for general clinical work.

An instrument used largely at the present time, on account of its convenience, is the von Fleischl hemometer. It is based on matching a diluted solution of blood in water with a tinted wedge of glass. It will be seen at a glance that it is practically impossible to tint a wedge-shaped piece of glass so that its scale will represent the corresponding solution of hemoglobin.

Without going into the matter at length, we will give the results obtained with the same standard solution we used in the specific gravity method.

Our Standard Solution.		*Von Fleischl Hemometer.*
100 per cent.	═══	109 per cent.
90 per cent.	═══	100 per cent.
80 per cent.	═══	80 per cent.
75 per cent.	═══	75 per cent.
70 per cent.	═══	69 per cent.
65 per cent.	═══	61 per cent.
60 per cent.	═══	56 per cent.
55 per cent.	═══	52 per cent.
50 per cent.	═══	46 per cent.
45 per cent.	═══	40 per cent.
40 per cent.	═══	38 per cent.
30 per cent.	═══	30 per cent.
20 per cent.	═══	20 per cent.
10 per cent.	═══	10 per cent.

Yet this is the instrument with which thousands of estimations of hemoglobin have been made by careful and conscientious workers!

In conclusion, we are forced to say that this instrument is costly and inaccurate.

Gowers's hemoglobinometer, which has received a great deal of abuse in the last few years, approaches accuracy as nearly as the von Fleischl instrument, and yet the former is claimed to estimate hemoglobin approximately and the latter exactly.

With the Gowers instrument we obtained the following results:

Our Standard Solution.		*Gowers's Hemoglobinometer.*
100 per cent.	=	95 per cent.
90 per cent.	=	88 per cent.
85 per cent.	=	83 per cent.
80 per cent.	=	78 per cent.
75 per cent.	=	72 per cent.
70 per cent.	=	66 per cent.
65 per cent.	=	63 per cent.
60 per cent.	=	58 per cent.
50 per cent.	=	49 per cent.
40 per cent.	=	37 per cent.

Thus it will be seen that it gives the amount of hemoglobin too low, but its results are not bad when compared in its simplicity to the elaborate von Fleischl instrument.

An instrument which deserves the highest praise for its accuracy and fine workmanship is the Oliver tintometer. The only drawback being its cost ($62.50). For those who can afford it we would recommend this instrument, as it is simple, accurate, taking but a short time to make an estimation with it.

It consists of (1) a series of twelve tinted glass disks, arranged in two rows, which correspond to the percentages of hemoglobin in the blood from 10 per cent. to 120 per cent. The finer degrees are obtained by placing other disks, ranging from 1 per cent. to 9 per cent. over the tinted glass, which comes nearest to matching the specimen of blood examined; (2) the other tinted glass disks, ranging from 1 per cent. to 9 per cent.; (3) a cell for mixing and diluting the blood with distilled water; (4) a capillary pipette; (5) an ordinary medicine-dropper, on the end of which is a small piece of rubber tubing just large enough to fit snugly over the capillary pipette.

The method of using the tintometer is very simple. The capillary pipette is filled with blood, water is drawn into the medicine-dropper, and it is attached to the capillary pipette. The blood is then washed

into the cell, and mixed thoroughly with the water. The cell is then covered with a piece of colorless glass, and the estimation is ready to be performed. To speak briefly, the cell is placed along-side the tinted disks until one is found which matches it, the tinted glass "riders" serve to give intermediate degrees, and are used in the same way.

There are two sets of disks, one for daylight, the other for candle-light. The inventor claims more accurate results from a small, narrow candle placed at a distance of about four inches. A square tube for shutting out extraneous light accompanies the instrument.

Our results with the Oliver tintometer are shown below, its accuracy was uniform, and the estimations were easily and quickly made, the same standard solution of hemoglobin being used.

Our Standard Solution.		*Oliver's Tintometer.*		
		Daylight.		*Candle-Light.*
100 per cent.	=	100 per cent.	=	100 per cent.
90 per cent.	=	90 per cent.	=	90 per cent.
85 per cent.	=	85 per cent.	=	85 per cent.
80 per cent.	=	80 per cent.	=	80 per cent.
75 per cent.	=	75 per cent.	=	75 per cent.
70 per cent.	=	70 per cent.	=	70 per cent.
65 per cent.	=	65 per cent.	=	65 per cent.
60 per cent.	=	60 per cent.	=	60 per cent.
50 per cent.	=	47 per cent.	=	50 per cent.
40 per cent.	=	38 per cent.	=	40 per cent.

It will be noticed that in two instances the observations gave a lower percentage by daylight, but were accurate by candle-light.

There are several other methods of estimating hemoglobin, not very extensively used in this country, among which are the chromocytometer of Bizzozero, and the hematoscope of Henocque. The former we have had no experience with, but the latter is a very handy and useful instrument, especially when used in conjunction with the spectromicroscope.

Before passing to a description of this instrument we will mention an ingenious method of Henocque's for the determination of the quantity of hemoglobin in the blood, which we quote from von Jaksch ("Clinical Diagnosis"). "Henocque observed the development of hemoglobin bands in the transparent parts, such as the lobe of the ear and the ungual phalanges of the fingers, capable of being illuminated by diffuse sunlight.

"In the case of the ungual phalanx, the part was ligatured, and he noted the length of time required for the appearance of the blood absorption band of reduced hemoglobin. Proceeding in this way he

found that, with a normal proportion of oxyhemoglobin, reduction took place in the course of seventy seconds, while with anemic blood the interval was shortened to thirty or forty seconds. As a result of his researches Henocque has arrived at the following formula, which is applicable to clinical purposes:

$$E = \frac{M}{D} \times 5.$$

"where E = energy of reduction
M = mean proportion of hemoglobin, ascertained by this method,
D = time in seconds in which reduction is accomplished.

"The formula is derived from the following considerations: In a specimen of blood holding fourteen grammes hemoglobin in 100 grammes, reduction takes place in seventy seconds; and in another holding thirteen grammes in 100, it takes place in sixty-five seconds. Inspection of these figures shows that in both cases a fifth part of the quantity of hemoglobin is reduced. Hence, to obtain the value of *E* (energy of reduction), the quantity of hemoglobin found is multiplied by five, and the product divided by the number expressing the time (in seconds) in which reduction takes place."

The hematoscope of Henocque consists of two plates of glass, placed together, to form a wedge-shaped space, in which the blood undiluted is placed for examination, the lower plate is about twenty-five millimetres wide and eighty-three millimetres long. On the upper half of this plate a scale in millimetres (0–60) is engraved, and at each end are grooves for the reception of the upper glass plate; which is about nine millimetres wide. At one end the upper plate is raised three-tenths millimetre from the lower plate, and at the other it is even with the surface.

It will be seen that the layer of blood included in this space is 0 millimetre thick at one end, and three-tenths millimetre thick at the other end, and its depth at any point can be determined by multiplying the corresponding number on the scale by five, which will give the result in mikra.

The space is filled with blood by pricking the finger and allowing the blood to fall upon the lower glass, which it can easily be made to run together by inclining the glass. The upper glass is then slid into the grooves, and the examination is ready to be begun. It may be conducted in two ways. The first method depends upon the opacity of the blood. An enamelled plate is supplied with the instrument, which has a scale on it precisely like the lower glass, except that it is ruled in black on white enamel, below the scale is a descending series of figures,

—15–14–13–12–11–10–9–8–7, etc. The examination consists in placing the plate under the lower glass, so that the two scales correspond, and noting the point at which the lower figures disappear from view, this gives the quantity of hemoglobin in the blood expressed in grammes. Hellström, Loos, von Jaksch, and ourselves are satisfied that the results obtained in this manner are not accurate, but indicate too large a quantity of hemoglobin.

A more accurate result is obtained without the enamelled plate by using a spectroscope in the following manner: A Browning pocket spectroscope suffices, or, as the writers use, a Sorby spectroscope eye-piece attached to a monocular continental stand, with an achromatic condenser. We will briefly give the method as we use it in the laboratory (obtained from Henocque). The hematoscope is placed upon the stage of the microscope, and a point is found where the bands of hemoglobin just become apparent. With the normal blood the bands become apparent at the figure " 14," and the thickness of the layer of blood at this point is seven-hundredths millimetre.

Taking 20 as the point where the bands are just apparent, $20 \times 0.005 = 0.1$ mm.

$$x : 14 = 0.07 : 0.005\ y.$$

$$x = \frac{14 \times 0.07}{0.005\ y}$$

14 = quantity of hemoglobin in 100 grammes of blood.
0.07 = thickness of layer at which bands become apparent.
0.005 = thickness of blood layer corresponding to one millimetre.
y = number of millimetres at point where absorption bands become distinctly visible, in this case.

$$x = \frac{14 \times 0.07}{0.005\ y} = \frac{196}{y}$$

$y = 20$ and $\frac{196}{20} = 9.8$ grammes of hemoglobin.

Henocque sends a corrected table with the instrument, which does away with the necessity of a fresh calculation each time.

Of course, practice is required to use this instrument accurately with the spectroscope, but when the necessary skill is once acquired an estimation can be performed very rapidly. We are forced to disagree with von Jaksch when he states that von Fleischl's instrument and that of Henocque are in accord, as we have found from a large number of examinations that the latter instrument is far more accurate (when used with the spectroscope) than the former, and indicates the percentage of hemoglobin very closely.

MacMunn (" The Spectroscope in Medicine," p. 67) suggests a

method of estimating the quantity of hemoglobin in the blood by means of the spectroscope: "Probably we might get a method still more accurate by noting the readings (with the microspectroscope), and calculating the wave-lengths corresponding to the edges of the absorption bands in a solution containing a known amount of hemoglobin, and examined in a layer of the same depth, and comparing with this standard solution, solutions of blood always diluted to the same amount with water, and examined at the same depth as the standard solution, and noting the wave-lengths of absorption bands given by the latter. I merely throw this out as a suggestion, not having had sufficient time to follow out the idea."[1]

MacMunn mentions, in his work, methods of estimating hemoglobin in use at that time (1880): (1) By the estimation of iron; (2) by the estimation of oxygen; (3) by the estimation of the hematin; (4) by the comparison method of Hoppe-Seyler; (5) by J. Worm Müller's method; (6) by the fluid scale of Welcker; (7) by Welcker's scale of blood stains; (8) by the painted scale of Hayem; (9) by the globulimeter of Mantegazza; (10) by the hemochromometer of Malassez. Judging by the number of methods, the estimation of hemoglobin was not neglected at that time.

In conclusion, we would state that from our observations we are led, first, to recommend the tintometer of Oliver as the most accurate clinical instrument for estimating the quantity of hemoglobin in the human blood; secondly, for those who cannot afford to purchase the above instrument, the specific gravity method will answer all purposes; and, thirdly, for those who are accustomed to the use of the spectroscope, we suggest the hematoscope of Henocque, which is useful for examining the urine for urobilin, blood, and, in fact, all pathological fluids. Estimations made with von Fleischl's instrument and Gowers's hemoglobinometer are not to be depended upon when an accurate result is desired, and that should be the aim of all engaged in this work.

We wish to thank Messrs. Armour & Co., for their painstaking labor and kindness in furnishing us with hemoglobin specially prepared for this purpose, and which is not on the market.

[1] The writers will later publish a spectroscopic method of estimating the amount of hemoglobin in the blood based on this suggestion.

ALUMNI NOTES.

The New Dormitories.

The contract for building the addition to the dormitories has been awarded, and work is to begin at once.

The new buildings will contain 175 rooms, accommodating over 200 students, and will be finished by August 1, 1900. The buildings, constituting, as they do, but one part of a great system, are planned so as to be exactly similar in every respect to those buildings already erected. The tower, which is to be erected under the auspices of the Houston Club in memory of those Pennsylvania alumni and undergraduates who took part in the war with Spain, will constitute one cottage, the block of buildings on Spruce Street will contain two more, and the cross-block will contain two more.

The main entrance to the triangle will be through the archway beneath the tower, in which will be hung the handsome and massive iron gates presented to the University by one of the recent classes. The tower will be five stories in height, while the remainder of the buildings are planned four stories. The archway underneath the tower will extend to the base of the third floor, and opening upon the archway on the ground floor will be the office, store-room, waiting-room, porter's room, etc. Above these doors, on either side, will be limestone tablets, on which will be engraved the names of those men in whose memory the tower is erected.

The material of the buildings, the same as that of the others, is to be brick, with limestone facings and trimmings, with blue slate roofs. The tower, which is to have four peaks, each one ninety-five feet in height, will be roofed with copper, giving it a handsome finish, while an elaborately carved stone coping will adorn the bottom of these spires. On the outside of the tower the ornamentation will be especially elaborate, just above the archway being the University seal carved in stone, with the motto, " Litteræ Sine Moribus Vanæ," while below it is the familiar " U. P.," in a carved monogram.

In the tower will be thirty-four rooms, of which twenty-five are bed-rooms, the rest being bath-rooms, offices, etc., on the first floor.

The total length of the frontage on Woodland Avenue and Spruce Street, including the tower, will be 157 feet, but the only entrance to the cottages from the outside will be under the tower, through the big twelve-foot gates. Outside the Spruce Street buildings, which will

extend down the street for ninety feet, will be a brick and stone wall, surmounted by a stone coping, and an iron fence enclosing a grass plot.

The cross-block of buildings will be erected on the western end of the old Athletic Field, which is now about ten feet below the level of the dormitory triangle. These buildings will be on the same level as the others, but the terrace which now leads from the triangle to the old field will be removed. On the outside of the buildings, facing the Athletic Field, will be a stone walk on the same level as the triangle, but raised about ten feet above the field. A handsome balustrade, with stone pillars, will be erected on the outside edge of this walk.

Underneath the walk will be a regular cloister with brick arches and a stone floor, for a promenade in rainy weather. This cloister, surmounted by the massive stone balustrade, promises to make the east end of the dormitories, with the memorial tower, a most strikingly handsome addition to the already varied and beautiful architectural features of the University.

The Athletic Field will be reached by broad flights of stone steps at either end of the block of buildings, the steps being reached through arcades like the one at the western end of the triangle.

That part of the new buildings which runs along the base of the triangle will differ slightly in plan from the others in that there will be a corridor running the entire length of the centre of each cottage, allowing a sufficient space for full-sized rooms on each side. This block will be forty-one feet in thickness.

Otherwise all the buildings will be finished like the others. The rooms will be finished in oak and colored plaster in place of paper, while they will contain open fireplaces for wood fires in the cold winter evenings. The doors opening into the cottages are on the level of the ground, but, entering, the visitor finds that the first floor rooms are about three feet above the level of the ground. Over each door is a carved stone slab, on which the name of the cottage is to be engraved. Most of the cottages in the present buildings have been named, some after the donors, like the "Class of '87" cottage, or some after distinguished educators or friends of the University, such as Benjamin Franklin, Phillips Brooks, Joseph Leidy, or Thomas McKean.

The rooms will be heated by steam and lighted by electricity, both supplied from the University Light and Heat Station, at Thirty-fourth and Spruce Streets. Bath-rooms equipped with shower-baths will be on each floor of every cottage.

The outside of the buildings will be ornamented by the same grotesquely carved gargoyles, which have been objects of so much interest on the walls of the present dormitories, while the copper water drains will be marked with the "U. P." monogram. These gargoyles are a

product of medieval architecture, and many an ancient spout which drained a roof gutter was fully as grotesque and untrue to life as those on the University dormitories. The improvement in sanitation and drainage, however, will not allow them to fulfil their original purpose of carrying the water from the roof gutter, for these gargoyles are intended merely for ornament.

Some bay windows will break the straight line of brick and stone walls, while the bright curtains and sofa cushions with which the college-men decorate their windows will lend a touch of color to the scene.

There will be fewer suites in the new buildings than in the others, as experience has shown that the single rooms are considered much more desirable, there being about three times as many of the former planned for the new cottages, while in the present cottages there are as many suites as single rooms.

The cross-block from Spruce Street extends only to within fifty feet of Hamilton Walk, on the south, and between this end of the new buildings and the end of the line of the present buildings is an open space of about 150 feet, where the dining-hall is to be built some time in the future. When this is completed it will be a building 200 by 50 feet, and will be the final link which will entirely surround the triangle by one continuous wall. Until this is done an iron fence will enclose this last remaining open space.

Necrology.

Dr. George S. Polis died in Philadelphia on August 29, 1899. His early education was received at the public schools of this city and the Episcopal Academy. He was graduated from the University of Pennsylvania in 1876.

Dr. Robert B. Cruice died in Philadelphia September 14, 1899. Dr. Cruice was of distinguished Irish ancestry, a younger son of James P. Cruice, of Lisroyon Lodge, County Roscommon, Ireland, and of Mary Emily Blake, oldest daughter of Robert J. Blake, of Carakellin House, Dunmore, County Galway, at which place Dr. Cruice was born on September 29, 1838. His maternal great-grandfather was Sir Lionel Burke, of Glensk Castle, Galway.

In 1850, Dr. Cruice came to the United States with his parents, and settled in Philadelphia. Six years later he entered the University of Pennsylvania, from which he graduated in 1859, his brother, Dr. John J. Cruice, graduating two years later. On the outbreak of the Civil War Dr. Cruice tendered his services to the Government. In July, 1861, he was appointed assistant-surgeon, and attached to the Thirty-eighth Regiment, Pennsylvania Volunteers, with which he

served till the regiment was consolidated with the One Hundred and Tenth Pennsylvania Volunteers, when he was transferred to the One Hundred and Thirteenth Pennsylvania Volunteers, which was then the Twelfth Cavalry. In June, 1862, he was attached to the command of Major-General McClellan, serving with Battery G, Fourth United States Artillery. At the battle of Chancellorsville Dr. Cruice was left a prisoner in a house which was subsequently set on fire. He made his escape, however, and following the steps of the retreating army succeeded in rejoining his command. An injury which he had received by his horse falling on him compelled Dr. Cruice's retirement from the army. His resignation was accepted August 17, 1863.

In September of that year he was appointed house-surgeon at St. Joseph's Hospital, in this city, and in 1867 became physician and surgeon in charge. In 1875 he was elected one of the visiting surgeons, and on the death of Dr. William V. Keating, in 1894, succeeded him as president of the medical staff. Dr. Cruice was at the time of his death a Fellow of the College of Physicians, a member of the County Medical, the State Medical, and the American Medical Societies, the Medical Club, the Art Club, and of Meade Post, Grand Army of the Republic.

Dr. William Hembel Taggart died at Reading, Penna., September 20, 1899. Dr. Taggart was born in Winchester, Va., July 15, 1830. He was graduated from the collegiate department of the University of Pennsylvania in 1849. While at college he was one of the founders of Eta Chapter, Delta Phi Fraternity. After graduation he pursued the study of medicine, receiving the degree of Doctor of Medicine from the University of Pennsylvania in 1852. He was resident physician in the Philadelphia Hospital one year, continued his medical studies in the hospitals of Paris, and later entered upon the practice of his profession in Philadelphia. In 1857 he was elected to the chair of Materia Medica and Therapeutics in the Philadelphia College of Medicine, and in 1859 was appointed to the same chair in the Pennsylvania Medical College.

At the outbreak of the Civil War, Dr. Taggart was appointed surgeon of the Tenth Regiment, Pennsylvania Infantry, and later surgeon of the Second Regiment, Pennsylvania Cavalry, Colonel Butler Price commanding, and of which his brother, Charles F. Taggart, who was killed in battle in 1863, was major. Dr. Taggart served with honor until ill-health compelled his resignation. Later in the struggle he was appointed acting assistant-surgeon, United States navy, and served under Admiral Farragut in the Gulf of Mexico. Dr. Taggart was a member of the First Troop, Philadelphia City Cavalry, and for ten years was surgeon of the troop.

EDITORIAL.

MYOSITIS.

Inflammatory affections of the muscles have received, until recently, comparatively little attention. Even the most elaborate works on the practice of medicine devote but a page or two to their discussion, and yet, without doubt, many cases, in which pain in the muscles is the chief symptom, and which are often regarded as examples of muscular rhuematism, would be more correctly classified under one of the forms of myositis. Inflammation of the muscles frequently occurs as a sequel to certain infectious diseases, especially typhoid fever, influenza, and scarlet fever, and may be mistaken for neuritis, which is also a common sequel. The lesions in the muscles, excited by the specific fevers, are, as in many other infectious processes, both degenerative and inflammatory. In pyemia, erysipelas, ulcerative endocarditis, and gonorrhea the myositis may be purulent. After typhoid fever suppurative myositis sometimes develops, and the abscesses may contain streptococci, staphylococci, or pure cultures of typhoid bacilli. An instance of purulent post-typhoid myositis, due to typhoid bacilli, has been recorded by Zahradricky (*Wiener klinische Rundschau*, No. 43, 1895). The abscess occurred in the muscles of the chest, beneath the right clavicle. On incision fifty cubic centimetres of pus were evacuated, cultures from which showed the presence of the typhoid bacillus without other organisms. Syphilitic myositis may be manifested as gumma of the muscle, or as a diffuse process characterized by an overgrowth of fibrous tissue between the muscle fibres, the latter ultimately undergoing degeneration and atrophy. Gummatous myositis usually occurs late after infection, and gives rise to a localized swelling in the muscle, which is not tender on pressure, but which occasions pain when the muscle is used. In three of the seven cases collected by Eger (*Deutsche medicinische Wochenschrift*, Band xxii, 1896) the lesion was symmetrical. The diffuse form of syphilitic myositis develops early in the disease. About 50 per cent. of the cases, according to Lewin, occur during the first year after infection. This form, which is especially prone to affect the biceps, is characterized by aching pain, generally worse at night, tenderness on pressure, induration, and diminished

power. The disease is refractory to treatment, and sometimes ultimately leads to wasting of the muscles.

Apart from those forms of myositis which are clearly secondary, there is an acute inflammatory affection of the muscles, which appears to be primary, and to this form of the disease the terms acute polymyositis and acute dermatomyositis have been applied. This disease was first described in 1887, independently by Wagner, Hepp, and Unverricht. Hepp gave it the name of pseudo-trichinosis. Since 1887 about thirty cases of the disease have been reported. The etiology of the affection is obscure; three hypotheses have been advanced,—(1) that the disease is due to a specific vegetable parasite; (2) that it is due to an animal parasite (gregarinæ); (3) that it is due to a toxin absorbed from the intestinal canal. Fraenkel holds that it is pyemic, but the failure to discover any primary focus of suppuration serves to discredit this view. The three cases reported by Kell (*Journal of the American Medical Association*, May 16, 1896) and the case reported by Senator (*Zeitschrift für klinische Medicin*, xv, 1888) give support to the toxin theory. Kell's cases developed soon after the eating of a fish that was apparently sick when caught, and in Senator's case the disease followed the ingestion of stale crab-meat.

The disease does not appear to be contagious, and in none of the cases have micro-organisms been found in the blood or in the muscles. After death the affected muscles are found to be swollen, soft, and of a pale-yellow color. Extravasations are common. Microscopic examination reveals swelling of the fibres, a loss of striæ, and more or less hyaline or waxy degeneration. Numerous round cells are seen between the fibres, and are sometimes an effusion of red blood-corpuscles. The spleen is large and soft. The lungs are often the seat of pneumonic consolidation. No lesions have been discovered in either the central or peripheral nervous systems. The disease may begin gradually or abruptly with headache, malaise, and moderate fever. Following these constitutional symptoms a painful swelling of the extremities develops, attended by stiffness of the muscles, tenderness on pressure, edema, and a variable rash, usually erythematous, but occasionally morbilliform, purpuric, or urticarial. Involvement of the intercostal muscles and diaphragm gives rise to dyspnea. The facial muscles and the muscles of deglutition have been affected in some instances. The reflexes are not lost, though it may be difficult to elicit them, on account of the rigidity and soreness of the muscles. Apart from the pain there are no disturbances of sensation. Usually the muscles react normally to electric currents, but in severe cases there may be altered polar response in certain groups. The duration of the disease is from two weeks to two years. In favorable cases the muscles are restored to

their normal condition, although recovery is often protracted. In severe cases a fatal termination may result from involvement of the respiratory muscles, or some complication, the most common being pneumonia. Neubaur has recently reported a case (*Centralblatt für innere Medicin*, March 25, 1899) in which recovery followed despite the presence of pneumonia, pleural effusion, and nephritis as complications. In some instances permanent rigidity and atrophy of the muscles follow the subsidence of the acute symptoms.

From the above description it is evident that the disease bears a close resemblance to both trichinosis and multiple neuritis. The history, the edema of the face, the presence of trichinæ in fragments of muscle, obtained by harpooning, and the great increase in the number of eosinophiles in the blood will lead to the recognition of trichinosis; while the anesthesia, marked paralysis, loss of knee-jerks, and the absence of rash will usually indicate neuritis.

Another curious affection of the muscles is the so-called progressive ossifying myositis, of which about fifty examples have already been recorded. This affection is characterized by the deposit of osseous material in the connective tissue of the muscles, in the tendons, aponeuroses, and ligaments. It is found especially in children, but it may appear in adults. Of thirty-nine cases, thirty were in males and nine in females (Roth). The etiology of the disease is unknown. In some instances it has followed traumatism. It has often been associated with malformations; according to Morian (*Münchener medicinische Wochenschrift*, February 14, 1899), in 64 per cent. of all cases of myositis ossificans, examined for the condition, microdactyly has been found. Various hypotheses have been advanced as to the cause of the disease. Some regard it as a chronic inflammatory affection; others, like Virchow, class it among the new growths, while still others favor the view that it is of trophoneurotic origin. The two cases reported by Eichhorst (*Virchow's Archiv*, Band cxxxix) lend some support to this last view. In one of these cases there was a congenital meningocele in lower part of the cord, with abnormal development of the hair in the vicinity, and a perforating ulcer of the left great toe; in the second case there were marked tabes, diabetes insipidus, and perforating ulcer of the left foot. The beginning of the disease is variable, sometimes being altogether chronic; at other times quite acute. The first indication is the appearance of a circumscribed swelling in the muscles, which may or may not be painful. At first this tumor has a slightly boggy feeling, but it subsequently becomes firmer, and finally osseous. The acute cases are accompanied by a febrile reaction. Missim (*Journal de Médicine*, January 25, 1898), who has made an extensive study of the condition, describes it as follows: "The muscles of

the back, particularly of the neck, are the most liable to attack. The long muscles of the back may form a single bony mass; later, the deltoid, the teres, and the pectoralis major may all be involved. As a result, the head becomes fixed, possibly to one side; ankylosis of the shoulder-joint, with immobility of the scapulæ and vertebral column may follow. Even the muscles of the upper and forearm may be affected with ankylosis of the elbow; similarly the muscles of the lower limbs may be involved from above downwards, especially those on the posterior aspect, with ankylosis of the hips and knees. Lastly, the masseters and pterygoid may succumb, resulting in immobility of the jaw. The appearance of the patient is striking, as he is converted into an immovable block, and it is possible to raise him up as one would a wooden figure by the head. The ossified muscles are somewhat irregular in outline, showing depressions and elevations covered by a pallid, thickened skin, which has lost all mobility by reason of subcutaneous adhesions to the underlying tissues. At the same time, the internal functions appear to be unaffected, and there is no alteration in intelligence. The facial muscles appear to escape. The duration extends over many years, and death seems to be due to some intercurrent affection, particularly tubercle."

AN UNDESCRIBED DIPLOCOCCUS IN ACUTE ENDOCARDITIS.

McCallum and Hastings, in a recent issue of the *Johns Hopkins Bulletin*, describe a micrococcus, which they twice obtained in pure culture during life, from the blood in a case of acute ulcerative endocarditis. At the autopsy the same organism was found in the heart's blood, and the aortic vegetations, as well as from infarcts in the spleen and kidney. The vegetations on the aortic valve were loaded with the diplococci. The peculiarities which distinguish the organism from the pyogenic cocci already described are:

(1) The mode of growth, which resembles that of the micrococcus lanceolatus, the diplococcus intracellularis meningitidis, and the streptococcus rather than that of the pyogenic cocci.

(2) The action on gelatin, which resembles that of the staphylococci.

(3) Its activity in peptonizing milk and coagulated blood-serum, in which it differs from all the above-named pyogenic cocci.

On account of its peptonizing properties they propose the name *micrococcus zymogenes.*

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND A. O. J. KELLY, M.D.

Cardio-Esophageal Gush and Click.

Curtin (*Medical News,* September 9, 1899) says he has observed two sounds which occur with the heart-sounds, which he believes to be extrapericardial and really esophageal in origin. He sums up his article thus:

(1) The sounds were heard at the beginning of systole of the heart, and had to be diagnosticated as endocardial murmurs in two instances.

(2) They were modified by respirations, being heard most markedly at the end of expirations.

(3) They were all more or less evanescent, except in one case.

(4) They were increased or developed by a full stomach, stimulants, or excitement.

(5) The sounds were increased by opening the mouth, and dulled by closing it.

(6) They were heard by auscultation at the middle of the sternum, but were very much subdued as compared with the sound heard at the open mouth.

(7) They were not transmitted in any direction from midsternum.

(8) They were not heard by auscultation over the stomach.

Ill Effects of Röntgen Rays.

Orleman (*Medical Record,* July 1, 1899) gives her personal experience with an X-ray burn.

She had recovered from a fracture of the femur, and three exposures to X-rays were made; an eight-inch spark was used from an Edison apparatus. Each exposure lasted eight minutes. Twenty-one days after the last exposure she noticed an area of inflammation one inch in circumference, and accompanied by itching. Gradually the itching and area of inflammation increased. Alcohol relieved the itching. In a few days blisters appeared over the inflamed area. Gradually the surface broke down, and an ulcerated area resulted.

Several weeks later pain began in the ulcer. Then a slough appeared over the area.

In the mean time all sorts of applications were made without any good

effect. After several weeks the slough was removed by operation and the parts stitched. But the wound did not heal. Six months after the burn she was put to bed, the leg put on a splint, and the ulcer poulticed to remove slough. After three months' rest in bed the ulcer healed.

The Mosquito as an Agent in the Transmission of Malaria.

Futcher (*American Journal of the Medical Sciences,* September, 1899) gives a review of the literature on the above subject.

As early as 1894 Munson suggested that the mosquito might be the intermediate host for the extracorporeal form of the parasite. In 1896 he found the flagellate form in the stomach of mosquitoes. In 1897 he found oval pigmented cells in the stomach walls of mosquitoes fed on malarial blood.

He then devoted himself to the study of the blood of birds. He used birds infected with proteosoma. He allowed mosquitoes to feed on the blood of these birds, and found that their stomach walls contained ovoid pigmented bodies on the second day. These bodies resembled coccidia. They grew rapidly. These coccidia were of two kinds. One contained innumerable thread-like bodies, the other large black spores. On the eighth or ninth day the coccidiæ ruptured, and these reproductive bodies were set free in the body cavity of the mosquito, and they entered the circulating juices. These bodies appeared to collect in a previously unknown gland. The gland is connected with the piercing apparatus of the proboscis.

He allowed sparrows where blood was known to be free from proteosoma to be bitten by mosquitoes which had fed upon the blood of sparrows infected with proteosoma. He was rewarded by finding the proteosoma in the blood of the bitten birds.

Other species of birds were also infected in the same way. These results of Ross have been confirmed by other observers. Koch and others have pointed out the intimate geographical associations between malaria and the mosquito. Italian observers have made observations going to confirm the results obtained by Ross.

Bignanni allowed a patient to be bitten by mosquitoes from a malarious district. The patient developed organisms in his blood. He states that inoculation is the only mechanism of infection which has been demonstrated experimentally.

Grassi, Bignanni, and Bastinelli made numerous experiments and conclude that the hemisporidia of malaria run in man the well-known cycle of development characterized by the long durations of the ameboid stage and the absence of the encapsulated phase; in this cycle they reproduce themselves an undetermined number of times, and also give rise to forms which remain sterile in man. These latter reach the intestine of the mosquito and develop into sporozoa, which in turn result in the formation of sporoids. These sporoids collect in the salivary gland, and reach man again in the act of biting. The development of the hemosporidia in the body of the mosquito has been demonstrated for the parasites of estivo-autumnal and ordinary tertian fever. Ross believes that the mosquito is the definite host and man the intermediate host of the parasite. The cycle of development is analogous to that of tenia solium and trichinæ sporalis.

He believes it will be possible to annihilate certain forms of mosquitoes by removing their breeding pools and preventing their reforming.

SURGERY.

UNDER THE CHARGE OF

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ASSISTED BY

CHARLES H. FRAZIER, M.D., AND GEORGE M. PURVES, M.D.

On the Dissemination of Cancer of the Breast and the Necessity for its Treatment by Extensive Operation.

Harold J. Stiles (*British Medical Journal,* July, 1899). The practical significance of the anatomical and pathological observations embodied in the researches of Haidenhain and the author have resulted in surgeons resorting to an operative procedure which, by meeting the pathological requirements, offers a fair prospect of ridding the patient of what was, and is even now, too often regarded as an incurable disease.

The distinction is drawn between what is called the complete and the incomplete operations. By complete is meant one which prevents external recurrence, but no operation can be termed complete in the sense of preventing internal recurrence,—for internal metastasis may already exist at the time of operation.

Although no better or stronger proof could be brought out in support of the value of extensive operations in cancer of the breast than is afforded by the results of those surgeons using this method, yet the author brings forward again the pathological grounds, making such an operation necessary if the patient is to be rid of the disease.

Since pathologists have agreed that carcinoma is primarily a local affection, it is clearly the duty of the surgeon to endeavor to remove not only the entire breast, but also, as far as possible, the adjacent tissues which are liable to be involved in the dissemination of the disease.

Given a scirrhous cancer of the breast, according to the views of Haidenhain, there are present throughout the whole breast proliferative changes in the epithelium of the parenchyma, and in the interacinous connective tissue, which must be looked upon as precancerous, sooner or later destined to develop into typical cancer. The author's own conclusions are that when cancer manifests itself in breast tissue which has been left behind, the disease is far more likely to originate in the cancerous emboli lurking in the lymphatics of the breast tissue rather than from the epithelium of the parenchyma.

The question is perhaps of less importance to the surgeon than to the pathologist, since in removing all the lymphatics of the breast he must necessarily remove all the parenchyma. Unfortunately, it is impossible in any given case to say to what extent the dissemination of cancer cells has taken place, and herein lies the difficulty and uncertainty of the operative treatment of malignant disease.

In the interesting affection known as Paget's disease of the nipple, the malignant epithelial cells, which either originate in or gain access to the ducts, subsequently spread along them, and destroy the adjacent normal epithelium in their advance. In microscopic preparations one can frequently trace the malignant disease from the surface of the nipple down some of the ducts, until a

frontier is reached where there is a marked line of demarcation between the cancerous and normal epithelium.

In Paget's disease of the nipple we come nearer to a demonstration of the actual initial stage of malignant disease than is afforded by any other forms of carcinoma. When and wherefore the origin of the malignant cell or cells surrounded on all sides by perfectly normal epithelium?

If it were not for the fact that the malignant cells were situated deep down in the epidermis, and often covered by many layers of normal epithelium, the author would be inclined to say that some of the cells, which had escaped from the orifices of the cancerous lactiferous ducts, had got implanted upon the surface and there taken root. Histological appearances alone, perhaps, contraindicate this view.

The same stimulus, whether a "contagium vivum" or not, is no doubt responsible for the malignant action which has been taken on both by the epithelium of the lactiferous ducts and by that of the adjacent epidermis.

In the development and spread of secondary nodules the cancerous cells have gained early access to the lymphatics, which occupy the adventitious coat of the main lactiferous ducts. These lymphatics open into the subareolar plexus of "Sappey," which in turn is in free communication with the cutaneous system of lymphatics.

But the subareolar plexus is not the only channel through which the lymphatics of the breast are brought into communication with those of the skin. If the mamma be sliced vertically, triangular, tooth-like processes of breast tissue will be seen to pass from the anterior aspect of the main body of the gland, to end in fibrinous prolongations (the suspensory ligament of Cooper), which reach the under surface of the true skin.

It is the entire absence of anything in the shape of a capsule to the breast, combined with the tapering off of the peripheral processes, containing parenchyma, which renders it so difficult for the surgeon to say when he has removed the whole mamma.

These peripheral processes of the mammary gland are not only of importance in giving a wide distribution to the parenchyma, but they are also of equal importance, in that they carry with them lymphatic vessels which bring the lymphatics of the breast proper into direct anatomical continuity with the lymphatics of the skin and subcutaneous tissue of the whole mammary area.

The retromammary and pectoral fascia are very commonly involved, on account of the number of the efferent lymphatics which leave the posterior surface of the mamma and ramify in them in the form of a horizontal plexus, from which main trunks arise and pierce the axillary fascia to reach the axillary glands. That these efferent vessels are involved at a comparatively early stage of cancer is shown by the frequency with which adhesions are present when it is attempted to strip the fascia off the deep surface of the mamma—hence also the glands are infected in an early stage of the disease, long before that of the skin.

If the important observations of Rotter are confirmed, there can be no question about the importance and necessity of removing the pectoral muscles in all cases. The writer is inclined to think that unless the operator be exceptionally skilful it would be well to take away both pectorals and the infraclavicular glands, which would facilitate the removal of all glands, fat, and cellular tissue from the axilla.

In regard to the involvement of lymphatic glands, it must be clearly understood that in its initial stage cancer of a lymphatic gland gives rise neither to

enlargement nor to induration, and the absence of these signs does not necessarily preclude malignancy.

Although cancerous glands are so frequently met with in the axilla, cancerous efferent and afferent lymphatic vessels are not so frequently found as one would expect, a point to which attention has been directed by Joerss, who suggests that infection from one gland to another takes place rather by embolism than by direct extension along the lymphatic vessels.

The lymphatic glands which are first involved are the pectoral group, which lies on the anterior part of the inner wall of the axilla, along the line of the long thoracic artery.

It must be understood that the glands towards the apex of the axilla and beneath the clavicle may be diseased while the pectoral glands are normal.

The author thinks that there are two points not sufficiently attended to while cleaning out the axilla, the one removal of the fascia over the serratus, and the other is that in removing the glands from the neighborhood of the axillary vein the sheath of the latter should be taken away. It is advisable, moreover, to remove the branches of the axillary vein which proceed towards it from the chest, since they are also accompanied by lymphatics.

Although Halsted recommends and practises the cleaning out of the supraclavicular glands, yet most surgeons will be disposed to await the results of the microscopic examination of the tissues.

The author concludes with the statement that "I certainly concur with Mr. Watson Cheyne, who says: 'I may add my firm conviction that the patient's chance lies in the first operation. If this fails, either from imperfect removal or on account of the extent of the disease in the first instance, further operation, however extensive, is seldom successful.'"

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D.,

AND

ARTHUR A. STEVENS, M.D.

A Case of Tetanus treated by Intracerebral Injection of Antitetanic Serum.

Dr. Thomas Gimlette (*Lancet,* July 9, 1899) reports a case of well-developed tetanus treated by the intracerebral injections of antitetanic serum.

The treatment of intracranial injection was that after the method of M. Roux and M. Borrel, of Paris.

The operation was performed under strict antiseptic precautions. An imaginary line from the root of the nose to the occipital protuberance was taken, another from one external auditory meatus to the other, and a third from the point of intersection of these to the outer angle of the left orbit. At the centre of this third line an incision was made down to the bone; the skull was then

drilled with a specially constructed drill, which, being provided with a stop, could penetrate the bone and dura only.

Through the hole thus made a serum injection-needle, three inches long and having the point rounded so as to avoid injury to the cerebral vessels, was introduced into the brain substance. being directed towards the spinal column.

The injection-syringe was so constructed that five cubic centimetres of concentrated serum could be injected, and no more.

The injection was made very slowly, ten minutes being occupied in injecting the five cubic centimetres.

The same procedure was repeated on the right side.

These injections were also supplemented by subcutaneous injections of antitetanic serum of twenty cubic centimetres daily.

The condition of the patient gradually grew worse for at least ten days, after which time there was a gradual improvement.

All stiffness and pain which he had immediately following the attack had entirely disappeared at the end of seven weeks.

The tetanus bacillus was cultivated from growths taken from the original wound.

No brain symptoms have followed the injection of the serum into the brain substance.

The author concludes with saying that the result of his case is a striking example of the efficacy of the treatment of tetanus as advocated by M. Roux and M. Borrel, of Paris.

Ichthyol in Phthisis.

Wertheimer (*Münchener medicinische Wochenschrift,* June 13, 1899) speaks highly of ichthyol internally in phthisis. The writer has administered it to most of his patients for two years. He prescribes it mixed with equal parts of water, giving one to two drops of the mixture after meals, in a tablespoonful of water, and gradually increasing the dose until ten drops thrice daily are taken. Larger doses have no special advantage. Distress in the stomach is an indication that the dose is too large. Wertheimer claims that, after a week or two of this treatment, the cough and expectoration diminish, the temperature falls to normal, the appetite improves, and that there is distinct gain in flesh.

Red Bone-Marrow in Anemia.

Fowler (*Scottish Medical and Surgical Journal,* September, 1899) has undertaken some experiments to determine the effect of red bone-marrow on the blood. For the purpose four young rabbits of the same litter were taken, one being fed on a diet poor in iron, one on a diet poor both in iron and proteid, a third on a diet poor in proteid but containing a sufficiency of organic iron, while the fourth was kept on ordinary food. It was found that while all three defective diets produced anemia, the greatest fall in hemoglobin took place where the iron was deficient, and the greatest fall in corpuscles where the proteid was deficient, the exclusive carbohydrate diet producing the greatest alterations in the blood. This diet, therefore, was selected as most likely to give results comparable with what happens in anemia occurring in man.

For counting the corpuscles a Thoma-Zeiss hemocytometer was used; for

estimating the hemoglobin, an Oliver's tintometer. The following is a summary of the results:

(1) Subcutaneous injections of bone-marrow have no action on the red corpuscles or hemoglobin of a healthy animal. (2) When the red corpuscles and hemoglobin fall below their normal limits, injections of bone-marrow produce a decided rise in both. This rise is well marked, sudden, and of short duration. (3) Along with the increase in the red corpuscles there is no corresponding improvement in the form of the cells. (4) The active principle is present in an aqueous, but not in an alcoholic, extract of marrow; it is not precipitated by boiling; it does not contain iron, and may possibly be a deutero-proteose.

The Surgical Treatment of Perforation of the Intestine in Typhoid Fever.

Waring (*Quarterly Medical Journal,* April, 1899) draws the following conclusions from a study of the recorded cases:

(1) That an operative procedure ought to be carried out in all cases of perforation of typhoid ulcers when the patient is not moribund, or so seriously ill from the primary affection that he is not likely to stand a somewhat severe operation.

(2) That the operative procedure should comprise opening the abdomen either in the right linea semilunaris or the linea alba below the umbilicus; locating the seat of perforation; suture of the perforation by the insertion of a series of fine silk sutures applied after Lembert's method; sponging the affected portions of peritoneum, and freeing them from all traces of contamination by intestinal contents; partial closure of the parietal wound and insertion of a gauze drain, which is passed down to the region of the sutured ulcers. (In searching for the perforation, the lower portion of the ileum should be examined, next the region of the vermiform appendix and cecum, and, finally, that of the sigmoid flexure.)

Peritonitis of sudden onset may come on during the course of typhoid fever, owing to the rupture of a gall-bladder which has become infected and filled with pus, or the rupture of a suppurating lymphatic gland in the mesentery. These possibilities should be borne in mind if any difficulty be experienced in locating the perforation after the abdomen has been opened.

Dry Antitoxin,—a Clinical Study of its Value in Diphtheria.

Louis Fischer (*Pediatrics,* July 15, 1899) reports five cases of diphtheria treated with dry antitoxin. Two of these were very malignant, one very severe, and two mild. Case II necessitated intubation about six hours after first seen. A very important point, and one worth noting, is that there was no distinct reaction immediately following the injection, nor was there any later in the disease. In one child the temperature remained stationary, did not rise or fall on the first day of the injection, but fell by lysis the following day and the succeeding days until the child recovered. This was true in all other cases; the temperature went down slowly by a process of lysis from the first day of the injection until the final recovery. The pulse behaved similar to the temperature, the number of beats going down from 120 to 80 in one case after several days of treatment, and in the case which necessitated intubation, the pulse went down from 108 to 80 in two days after the intubation. The respiration went down in twenty-four hours

from 48 at the time of the intubation to 28 in one day. All five cases recovered without any sequels. A noticeable point was that not one of the children complained of the pains in the joints following injection. In none of the cases injected was there an antitoxin rash following the injection of the dry antitoxin. It has frequently been claimed, and by some very good observers, that one of the main reasons for the appearance of an occasional exanthem following the injection of the liquid antitoxin was because the latter contained either trikresol or carbolic acid for the preservation of the same. Some chemists have stated that in some instances, when toxic symptoms have been observed, the latter were produced by the small quantity of carbolic acid present in the serum. If this is true, then one of the most objectionable features added to the antitoxin has been removed. Antitoxin is no longer an experiment, and therefore, without wishing to over-estimate this new product, Fischer feels warranted in advocating its use in every form of diphtheria, and more especially in very malignant forms. No more than 2000 units, or the contents of two bottles, each containing 1000 units, were necessary to effect a cure. Dry antitoxin is a golden-yellow crystalline substance quite readily soluble in sterilized water, and containing no foreign antiseptic. The remedy must be dissolved immediately before use by adding from one to four centimetres of cold sterilized water by means of a sterilized pipette into a bottle of antitoxin. The solid serum dissolves slowly; the greatest caution must be used not to contaminate the solid serum, as it contains no antiseptic, nor should any be added to the water used for dissolving the serum.

The Poisonous Properties of Heroin.

Harnack (*Münchener medicinische Wochenschrift,* July 4, 1899) states that he has recently made some experiments on animals which do not agree with those of Dreser; on the contrary, they harmonize with those of Dott and Stockman, in attributing to heroin a more depressant action on the respiration than is exerted by morphine. The drug is also a depressant to the heart, and gives rise to twitchings and convulsions. The maximum dose, at present, should not exceed one-twelfth of a grain.

Chrysarobin for Warts.

Fitz (*Boston Medical and Surgical Journal,* June 29, 1899) treated a wart on the plantar aspect of the foot with salicylic acid in collodion for three weeks without effect. He was then led, from its superficial resemblance to the lesion of psoriasis,—viz., bleeding points,—to try a solution of chrysarobin in gutta-percha. The wart was thoroughly pared to profuse bleeding and the solution applied to the denuded surface. The patient was directed to cut the surface every night and apply the chrysarobin. In a few days the pain disappeared and the wart seemed diminished in size. In two weeks' time the wart was practically gone and the surface restored to its normal condition.

Since that time Dr. Fitz has applied chrysarobin in eight cases of warts, similarly located, which had been treated for months by salicylic acid without success. In most cases the chrysarobin produced little effect before the end of the first week, except that the pain became less and the wart did not increase; in the second week change was rapid in most of the cases, although in a few cases there was still little effect. In the third week the majority were cured. In the series of eight cases there have been no failures. Two apparent failures were

traced to difficulty in paring the wart, and as soon as this was remedied by sand-papering, the cure progressed favorably. Careful thinning of the surface with a sharp, fine glass-paper gives better results than paring with a knife, as the patient is less afraid of injuring himself and can more conveniently handle the paper. Chrysarobin may be applied either in a 10-per-cent. solution of the ordinary gutta-percha solution or in a 10-per-cent. ether solution at night, and the patient should put on an old stocking, to prevent soiling the bedclothing. Application once a day in this way seems ordinarily to be sufficient, but in obstinate cases it should be applied both night and morning. Chrysarobin seems to act not only upon the keratinized portion of the skin, but also upon the proliferated blood-vessels in the papillary central part, for both disappear and true skin is formed over the surface. No scab is thrown off, but a considerable thickness of the surface is removed in each.

Operations in Gastric Ulcer.

Bidwell (*American Journal of the Medical Sciences,* September, 1899) states that the symptoms and signs which should guide us in making a diagnosis of perforation are (1) history of previous treatment for gastric ulcer, and of the occurrence of hematemesis; (2) the sudden onset of the pain; (3) the intense shock; (4) the board-like rigidity of the abdominal walls and the presence of a tender spot over the stomach; (5) the diminution or absence of liver dulness; and (6) the presence of free fluid in the peritoneal cavity. According to the writer the following is the class of cases in which an operation should be done:

(1) In all cases of perforation at the very earliest possible moment; also in subphrenic abscess.

(2) In cases of hemorrhage, (*a*) when there is continual oozing of blood, especially if the stomach be dilated, and (*b*) in cases of repeated severe hemorrhage.

(3) In cases where there is severe pain and vomiting unaffected by treatment, and which is producing progressive emaciation.

(4) In cases of dilatation of the stomach from contraction within or from adhesions outside of the stomach.

OBSTETRICS.

UNDER THE CHARGE OF

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ASSISTED BY

W. A. NEWMAN DORLAND, M.D.

Treatment of Abortion.

Lantos (*Monatsheft für Geburtshülfe und Gynäkologie,* May, 1899) reported one hundred cases of abortion in 1894, so that the present article is a continuation of his original study of this subjct. He agrees with Brausewetter, who has also especially interested himself in the treatment of abortion, that there is

need of research in this direction to enable our management to leave a certain rut into which it has fallen.

Threatened abortion, in which the clinical picture is made up only of pains and hemorrhage with closed os, requires no more than rest in bed, because with closed os the bleeding should be slight. But when with closed os hemorrhage is profuse, we must no longer speak of "threatened" but of "beginning" abortion. In cases like this, especially if the os enlarges, we cannot possibly reckon on saving the embryo, although this may unexpectedly occur in rare instances. Beginning abortion is treated, of course, by the vaginal tampon. The third stage is that of complete abortion; persistent bleeding usually denotes retention of bits of membrane, and the proof of retention is usually found in the patency of the os to one finger. Examination of the ovum is necessary to determine the likelihood of the persistency of portions within the uterus. In this way, if we find that the integrity of the expelled ovum has not suffered, we need have no fear of retention. If the ovum is incomplete, and hemorrhage continues from the uterus, we have every warrant for emptying the uterus with the curette. If the os uteri closes, we may feel sure that the remains of decidua must be slight. With every evidence of expelled ovum and closed os, persistent bleeding can be due only to atony of the uterus.

Lantos believes that the pathology and treatment, as here outlined, are susceptible of some improvement. He would abolish the three stages, and speak only of abortion *per se*. He would restrict the term abortion to the first three months of pregnancy, and would not speak of the act of abortion, but of the severe symptoms which are at times called forth, such as fever and hemorrhage. The practitioner is not summoned to treat the abortion proper, but the alarming hemorrhage and fever. Upon taking charge of a case we have to determine the duration of the symptoms, the state of the general health, the substance expelled from the uterus—and when expulsion first took place—and the condition of the os uteri. The author bases this summary upon an analysis of 300 cases in private practice.

Urinary Toxicity in Pregnant Women.

Labadie-Lagrave and others (*Archives générales de Médecine,* May, 1899) state at the beginning of their article that heretofore the association of urinary toxicity with pregnancy has had reference only to eclampsia; and that, therefore, there should be instituted a special study of the intoxicating properties of the urine of the pregnant woman without special reference to eclampsia or any other single condition. It should, however, be stated that studies of general scope have been made in this direction for the latter months of pregnancy. The present authors have studied the question from the beginning of gestation, with a view of determining when the urine becomes toxic.

With regard to the first six weeks after impregnation, or rather after the last menstrual period, the normal toxicity undergoes a diminution instead of an increase (which might theoretically have been anticipated); it would therefore appear that this diminution of toxicity may serve as an early sign of pregnancy. If a suspected case of pregnancy exhibits normal toxicity, we may therefore reckon upon the existence of hepatic insufficiency, provided pregnancy is actually present.

If, however, the urinary toxicity is diminished, we cannot at once jump to the conclusion that the woman is pregnant, because this diminution of toxicity is

also present in chlorosis, hysteria, and tuberculosis. A chlorotic subject undergoes rapid recovery of normal toxicity under appropriate treatment; but if such a patient becomes pregnant the toxicity will not increase under the customary treatment. This is also true of the hysterical and tubercular subject. If patients of this sort do not improve under suitable treatment and have been exposed to impregnation, the failure to regain the normal toxicity is readily explained.

The authors show by a toxicity curve that a given patient had her toxicity lowered in the third month, slightly recovered in the fourth, lowered again in the fifth, partly regained in the sixth, practically unchanged until delivery, the normal toxicity being regained in some six weeks after delivery.

The authors therefore conclude that, normally, there should occur a marked lowering of urinary toxicity in pregnancy, and thus whenever this law is violated there is always a definite reason for it, and that if a pregnant woman has a toxicity equal or superior to normal, we should fear the possible development of eclampsia.

Can Ergot cause Rupture of the Uterus?

Bong (*Monatsheft für Geburtshülfe und Gynäkologie,* June, 1899, p. 900), in a meeting of the Cologne Obstetrical and Gynecological Society (February 10, 1899), discusses a case of uterine rupture in a II-para, to whom a midwife had administered four grammes of ergot within a short time. The pains became much stronger for a while, and then suddenly ceased with slight hemorrhage into the vagina. Bong was summoned, and found the fetal head in the pelvic inlet, and os dilated as large as a silver dollar. No fetal heart sounds. He made a diagnosis of atony, and used expectant measures. On the next afternoon the patient collapsed. Examination revealed a right-sided uterine tear. Delivery accomplished by turning, and manual extraction. Autopsy showed much blood in the peritoneal cavity. Bong was of the opinion that the ergot had produced a tetanus uteri, and that the locality of least resistance had ruptured. The head was in the second vertex position, and the tear occurred in the right side of the lower segment. Ergot is doubtless at the bottom of many a case of "spontaneous rupture" of the uterus at the hands of midwives.

In discussion Frank related a parallel case, and agreed with Bong in attributing the blame to ergot.

GYNECOLOGY.

UNDER THE CHARGE OF

CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

H. D. BEYEA, M.D., AND H. L. WILLIAMS, M.D.

Sixty Cases of Colpo-Celiotomy.

Sarwey (*Centralblatt für Gynäkologie,* No. 23, 1899) reports sixty cases of colpo-celiotomy performed by Professor Döderlein during the last eighteen

months. The operation of colpo-celiotomy was elected sixty times among 420 peritoneal operations performed by the same operator. Colpo-celiotomy posterior was employed fifty-one times and colpo-celiotomy anterior nine times; the former operation being preferred because of the greater simplicity of technique, the ease of reaching the internal genitals, because of better drainage through the wound opening, the more favorable healing of the wound, and the better position for a scar.

Colpo-celiotomy posterior was done seventeen times as a pure exploratory procedure (three times following laparotomy, because of extensive adhesions, three times following radical operations for bilateral pyosalpinx and myoma, and in the remaining cases conservatism was practised); sixteen times for the removal of ovarian tumors (eleven cysts, three dermoids, two small solid tumors, because of extensive adhesions laparotomy had to be secondarily performed); ten times for pyohydrosalpinx; three times for tubercular peritonitis; once for subperitoneal myoma (myomectomy) and twice for extrauterine pregnancy. Colpo-celiotomy anterior was performed six times, to accomplish vaginal fixation of the uterus, and three times for the removal of small tumors in front of the uterus (two cysts and one tubal abortion). Two cases, both extrauterine pregnancy, died.

From this experience the writer concludes that vaginal celiotomy should not be attempted where there are large solid tumors of the ovary, in large ovarian cysts and also small ovarian cysts, where there are extensive adhesions, but it is indicated in all tumors which remain movable in the small pelvis.

Lipomyoma of the Uterus.

Brünings (*Centralblatt für Gynäkologie,* No. 23, 1899), at the Eighth Versammlung der deutschen Gesellschaft für Gynäkologie in Berlin, May 24, 1899, demonstrated a number of microscopical preparations, which were made for a myomatous tumor of the anterior uterine wall. The patient was 55 years of age, was operated upon, and the interstitial tumor removed.

The microscopical preparations showed that there had been a conversion of the muscle-cells into fat-cells, so that in many places the section appeared to be composed of fat-cells alone. He could observe where, in the muscle-cells, vacuoles began and then gradually increased in diameter until they were large fat-cells. In many places, also, the protoplasm of the muscle-cells were greatly swollen, and through division there were many nuclei. This resembled the picture seen in progressive atrophy of striated muscle. The change into the various forms of nuclei, the formation of vacuoles as an indication of chromatic change, must be considered a beginning regressive metamorphosis. The entire process (the conversion of muscle-cells into fat-cells) proves the histogenic relation between muscle and connective tissue.

Some New Instruments to facilitate the Operation of Myomectomy.

Kelly (*American Journal of Obstetrics,* August, 1899) states that in several instances it has fallen to his lot to treat young women having a fibroid tumor, and who anticipated marriage. In a considerable number of other cases, young married women were childless and exceedingly anxious not to be deprived of

the hope of offspring. He has for this reason treated over 100 cases by myomectomy, and has long since adopted this operation as the operation of election within certain easily definable limits. He would therefore perform myomectomy no matter what the number or site of tumors, in all cases where the level of the myomatous uterus was below the umbilicus, and in selected cases where the uterus rises well into the upper part of the abdominal cavity. He would not do a myomectomy where advanced age of the patient made it useless, or where disease of the tubes made conservatism of the uterus useless, or where the patient was so exhausted by hemorrhage or some complicating condition as to make it imperative to complete the operation as quickly as possible. Myomectomy is more dangerous than hysteromyomectomy, and must therefore be performed with greater deliberation and with greater care in each step of the technique. Myomectomy is more dangerous because in each case operation must be individualized. In myomectomy there is greater danger of hemorrhage. Myomectomy is more dangerous than hysteromyomectomy, because, while in the latter operation the tissue handled for the most part are those which are to be removed, in myomectomy there is a great deal of handling of tissue, which are finally dropped back into the abdominal cavity. In performing myomectomy he insists upon the following precautions: Hemorrhage must be checked throughout by using a necessary number of interrupted, serpentine, or mattress sutures, applied with particular care to the areas which are most inclined to bleed, in two or even three layers, from the bottom of the wound to the peritoneal surfaces. To avoid the risk of increased handling, both operator and his assistants must wear rubber gloves throughout the entire operation, He has devised two forms of instruments for the purpose of removing the tumor from its bed. The instruments may be described as being somewhat the shape of a surgeon's scalpel, and having near the end of the blade a serrated surface; the teeth in the larger instrument numbering eleven and the smaller instrument fourteen. For small fibroid nodules, from the size of a pea to a cherry, he has had constructed a myoma-pick, which is plunged into the tumor and serves to lift it rapidly out of its bed while it is detached by the knife, scissors, or small crenate enucleator. The advantages obtained by the use of these instruments are the material shortening of the time of operation, the lessening of the amount of trauma, and, what is most important, the entire absence of any actual handling of the parts; besides which the entire tumor is removed without leaving any slivers or bits behind, as is often done where the knife is used for the purpose of enucleation.

The Operation for Complete Tear of the Perineum.

Kelly (*American Journal of Obstetrics,* August, 1899), at the meeting of the American Gynecological Society, on May 24, 1899, describes a new operation for the repair of a complete tear of the perineum, and reports twelve cases where the operation accomplished a satisfactory result. In his paper, "The Dissection and Liberation of the Sphincter Ani Muscle followed by the Direct Suture in Cases of Complete Tear of the Perineum," published this year in the Johns Hopkins Bulletin, he states that he made prominent three points: First, that injuries to the exterior sphincter muscle are overlooked; second, that the control of the bowel may reside in some measure in the internal sphincter muscle; and, third, the best method of treatment of a torn sphincter is by liberating it from the surrounding tissue and then uniting the free ends by buried catgut sutures. In that

paper he endeavored to show that the results of the method of suturing were far better than those obtainable by any of the methods generally practised which depend on the approximation of broad surfaces. Under the older plan of treatment complete failure occasionally occurs; quite frequently the result is imperfect; a fistula may form communicating with the vagina or vulva, or the control over the function of the bowel may be imperfect at first. He says these results are due to absence of direct union re-establishing the continuity of sphincter. The direct suture of the muscle by buried catgut sutures does away with these difficulties, and gives the patient an immediate sense of control over her rectal functions. In the present paper he describes two important points, which serve to relieve the operation entirely of the risk of infection. The plan of operating spoken of, involving, as it does, the use of buried sutures, adds to the risk of infection, and for this reason he has adopted the following plan: The denudation is made so that there is no rectal wound. An incision is carried across the septum at least a centimetre above the margin between the junction of the rectal and vaginal mucous membrane. This incision extends across the whole septum and above and beyond the sphincter ends. Taking this as the base line, the operation on the vulvar and vaginal portion of the rent is then made in the usual manner, as in the case of repair of an ordinary relaxed vaginal outlet. Having completed this denudation, the operator turns his attention to the rectal tear. He inserts his left index-finger into the bowel and draws the septum forward, and then carefully dissects the strip of undenuded tissue described above so as to free it and turn it down as an apron. At the sides of this flap the ends of the sphincter muscle are caught up and liberated, as described in the previous paper. The purpose of the flap is to turn down an apron or fold of tissue, which, when the sutures are all in place, projects out of the anal orifice and points in a direction away from the impact of the fecal masses. By making this apron the presence of a wound in the rectal surface is avoided, and the most serious complicating conditions removed. When the denudation is complete and the apron turned down, the second complication is avoided, the presence of dead spaces in the septum, by the following plan: Three or four catgut sutures are applied in the form of a figure-of-eight. They are inserted above, and each suture grasps the fibres of the internal sphincter muscle well to one side of the median line sutures, then carried to the opposite side, then past the tissue of the septum well above the internal sphincter, it then returns to the first side and includes the corresponding area of tissue, and is finally brought out through the internal sphincter at a point corresponding with point of entrance. This entire suture is buried in the septum. Then the sutures (silkworm gut) which approximate the triangles are introduced and then those of the perineal surface. The final step is the union of the edges of the apron, which now lie more or less crumpled together and projecting at the anus; by leaving these sutures long and making slight traction this entire line can be drawn well outside and fixed on the buttocks by a strap of adhesive plaster.

The paper was discussed by T. A. Emmet, Buckmaster, Johnstone, Harris, Baldy, Smith, and others. Emmet said that he looked upon the closure of a lacerated sphincter as one of the simplest operations in surgery, and he was sure that the surgeon should cure 95 per cent. of his cases, and in the other 5 per cent. should discharge his nurse as incompetent. The reason a dead space was often left was that the operator did not denude far enough beyond the fistula. As the surfaces to be sutured represented two arcs of a circle, it was necessary to suture so that they radiated like the sticks of a fan. No matter how the

sutures were inserted, if the bowels were not moved daily by a saline cathartic, a certain percentage would necessarily fail. Nothing, he said, irritated him so much as the advocacy of the "flap-splitting operation." This splitting meant the invasion of the connective tissue between the rectum and vagina. Such a method of operating was an excellent demonstration of how not to repair such a perineal laceration.

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITERAS, M.D.,

ASSISTED BY

DAVID RIESMAN, M.D.

The Seat and the Development of Primary Pulmonary Tuberculosis.

Birch-Hirschfeld (*Deutsches Archiv für klinische Medicin,* Band lxiv) presents an important contribution to the pathology of pulmonary tuberculosis. After a brief *résumé* of the historic development of the subject, he postulates his opinion regarding the primary development of the disease in the sentence, "Pulmonary tuberculosis in its first stage is, as a rule, a mucous membrane tuberculosis located in a medium-sized apical bronchus." In proof of this theorem many data are brought forth. The anatomy of the bronchial tree is first discussed, as the thought suggested itself that the preference of the tuberculous infection for the bronchi of the apices might be based upon anatomic grounds. Birch-Hirschfeld succeeded in making some very beautiful bronchial casts, and adopts a new scheme of classifying the bronchi, which it is not necessary to reproduce here. The primary lesions are found especially in the branches of the third to the fifth order.

The Pathologic Anatomy of Primary Bronchial Tuberculosis.—Of 3067 autopsies, 41.86 presented tuberculous lung lesions. In 11.97 the lesions were cicatrized. Among 826 cases of sudden death from acute disease or accident, tuberculous lesions were found in 171. In 105 of these the lesions were fibrous, in 31 a rather extensive pulmonary tuberculosis, and in 35 beginning tuberculous foci were found. The primary bronchial focus may readily be overlooked. In size it is often fairly large (the size of a hazel-nut), but it is situated beneath the surface. This deep situation is explained on the ground that the medium-sized bronchus is the seat of the first changes. The bronchial lesions primarily cause no change on the surface of the lung; the visceral pleura remains smooth and without adhesions. In this stage the incipient phthisis may readily be overlooked. The discovery of these lesions succeeds best when one forms the habit of palpating the lung in all its parts before incising it. If in this way a circumscribed, firm area is found, the attempt should be made to introduce a director into the afferent branch and to incise this afterwards. With this method of examination thirty-two cases of beginning tuberculosis were studied. Of these, twenty-eight agreed in having the tuberculous lesion in the wall of a medium-sized bronchus. In a few cases this was the only lesion. More frequently new tuberculous foci had

formed, but these left no doubt that the bronchial focus was the primary one. As against these twenty-eight cases of initial bronchial tuberculosis, the author found only three in which the primary lesions seemed to have been an interstitial development of miliary tubercles. The possibility of a primary hematogenic tuberculosis must be admitted, but it is certainly rare. In view of the generally accepted doctrine concerning the beginning of pulmonary phthisis in the form of a caseous bronchial pneumonia, it is interesting to know that the author in no instance was able to demonstrate such a beginning. Numerous cases are cited proving his contention. A few words are said concerning the initial hemoptysis of pulmonary tuberculosis. It can, of course, no longer be maintained that the initial hemorrhage is the cause of phthisis (the *phthisis ab hæmoptysi* of the old writers); but its true origin has not been satisfactorily explained. Birch-Hirschfeld attributes it to the rupture of venous branches in the wall of a bronchus or in the peribronchial tissue. This hemorrhage is much more benign than that occurring during the course of phthisis. That a hemorrhage can favor the extension of a tuberculous process cannot be doubted. It probably does so by carrying infectious material to parts of the lung theretofore healthy. But even when the hemorrhage occurs from a latent tuberculous focus in the bronchus, a favorable termination of the tuberculosis is possible. When once the tuberculous focus has broken down and communication is established with the air-passages, the opportunity for the dissemination of tuberculous material is given and secondary tuberculous bronchopneumonias are apt to result. In this way a latent pulmonary tuberculosis is transformed into a manifest phthisis. It is a fact that even somewhat extensive apical foci may be arrested. This is generally brought about by obliteration of the affected bronchus and the fibrous transformation of the diseased areas beyond. A similar favorable course may be taken by that form of primary tuberculosis having its beginning in the interstitial tissue. The residues of this form present themselves generally as anthracotic *schwielen,* with caseous or calcified nuclei, which frequently are subpleural, cause puckering of the surface of the lung, and bear no relation to the bronchi.

The Pathogenesis of Primary Bronchial Tuberculosis.—Two points are to be considered: First, the disposition of the apices to primary tuberculosis; second, the perforation of the tuberculous lesion into the bronchial lumen. Regarding the seat of latent bronchial tuberculosis, Birch-Hirschfeld found that in thirty-four cases the right upper lobe was involved twenty-four times, the tuberculous focus being situated twenty-two times in the apical bronchus and only twice in the lower part of the upper lobe. Of twenty-one lesions situated high up in the lobe, twelve affected the apex itself, ten were situated from five to seven centimetres below the apex proper. It is noteworthy that both the apical and the subapical nodules seemed to prefer the posterior half of the lobe. It appears from this that the bronchial tree in the posterior part of the lung apex constitutes a favorable soil for the deposition of inhaled tubercle bacilli. In fifteen cases the left upper lobe was affected, all the areas being situated in the territory of the apical bronchus. It is scarcely proper from these small figures to draw any conclusion as to whether the left or the right lobe is the more often affected, although they bear out Laennec's assertion that the right lobe is the preferential seat. More important than this point is the question why the apices are so much more frequently affected than other parts of the lung. This has been the problem since the days of Laennec and Louis. Even the earliest writers brought this predisposition of the apices in relation with the insufficient respiratory activity of the apices, the majority believing in an imperfect inspiratory action of these

parts. Freund attributed this to the premature ossification of the cartilages of the first rib. Rühle thought that the ordinary type of respiration (diaphragmatic) did not sufficiently bring into play the upper portions of the thorax. In pneumokoniosis, as Zenker and Arnold have demonstrated, the apices are not more involved than the lower portions, if as much. The experiments show that inhaled dust is deposited first in the upper portions, then, however, and in largest quantity, in the lowest parts of the lung. After the cessation of the administration of dust, the foreign particles are removed first from the lower lobes, then from the upper. It follows from this that when there is an increased deposit of inhaled foreign particles in the apices, it is the result, not of increased introduction, but of insufficient elimination. When, therefore, in some cases of pneumokoniosis, the upper lobes are especially affected, it may be explained on the ground that in those cases there was an individual deficiency in the power to remove the dust. Applying this to tuberculosis, we may conclude that it is not the increased deposition of bacilli in the apices, but more likely conditions favoring their remaining there that are chiefly concerned. The retention of tubercle bacilli in these parts is connected with mechanical conditions of respiration, especially with deficient expiratory movement, as it is the expiration which is principally concerned in the removal of foreign bodies from the air-passages.

The apical bronchi have a nearly vertical direction, and the inspiratory and expiratory currents of air must pass in an almost opposite direction from those in the trachea. Another factor is the movement and positional changes of the bronchi during respiration. Casts made from the bronchial tree show, in many instances, defects and irregularities in the cross section of apical bronchi, suggesting the existence in the lobes, which are the seats of predilection for tuberculosis, of factors interfering with the respiratory function. Several investigators, among others Riegel, have shown that in the posterior part of the apices the expiratory excursion is less than anywhere else in the lungs. The topographic conditions of the apical portion of the lung thus favor an interruption in the respiratory current of air, and the deposition of foreign bodies must of necessity occur where the current enters a "dead area." It is also possible that during violent expiratory efforts with hinderance to expulsion (as in violent coughing), a retrograde current is set up by which infectious foreign bodies are carried into the inactive part of the bronchial tubes. The defective development of the posterior apical bronchi was found frequently in cases with poorly developed, flat chests; but it was also noted in persons of good development. It is noteworthy that in the child's lung the apical bronchi do not show the unfavorable topographic relations seen in the adult.

For tuberculosis to develop in the lung it is not only necessary that the infectious material shall lodge in the bronchi that are favorably placed, but also that it shall multiply. The conditions for this are probably produced by pathologic processes that most readily occur in those bronchi in which ventilation by the respiratory movements is deficient. In the apical bronchi, secretions are easily retained and probably serve as culture media for the bacilli. The inflammation produced by the bacilli is like that seen in other mucous membranes, and consists, primarily, in the development of subepithelial tubercles which enlarge and break down and in time extend to the peribronchial tissues. The liquefaction of the caseous masses leads to the formation of small bronchiectatic cavities. The experimental investigations concerning the ways in which surface infection is produced have not yielded definite results. It is probable that slight erosions of the mucosa with imperfect regeneration of the epithelium favor the entrance of

the bacilli. That the tuberculous infection demands a previous disease, in other words, that it is a secondary process, as is held by Hansemann, cannot be maintained. The intact bronchi do not offer, to be sure, a favorable seat for the entrance of tubercle bacilli; but whatever the predisposing causes are, they are merely accessory factors, and are constituted chiefly by mechanical conditions. In those rare cases in which primary bronchial tuberculosis is found in the larger branches, special factors are probably at work. The favorable termination of incipient bronchial tuberculosis is usually brought about by the obliteration of the bronchus above the lesion, with condensation, calcification, and fibroid change in the infected area beyond. The cause of the liquefaction of the tuberculous focus is not definitely established. Mechanical injuries and mixed infection may play a part. Everything should be done to prevent the liquefaction. Our efforts, however, can only be successful if the diagnosis of the disease is made early enough. The demonstration of the existence of a non-liquefied primary bronchial focus is not possible by means of sputum examination. A physical exploration may also fail. Whether the Röntgen ray will aid us, it is as yet too early to say.

Aneurism of the Coronary Artery.

Capps (*American Journal of the Medical Sciences,* September, 1899) reports two cases of aneurism of the coronary artery, and gives an analysis of seventeen other cases collected from the literature. Both left and right coronaries seem to be involved about an equal number of times. The usual site of the dilatation is very near the origin from the aorta in the loose cellular tissue, so well described by Vestburg as the "periaortic space." This location is also a favorite place for interparietal aneurisms of the heart. The affection vastly predominates in males. Age has less influence in the pathology than one would suspect. More cases were under 40 than over that age. A remarkable fact is its occurrence in two very young children. Only two subjects had been engaged in heavy work. Two individuals gave a history of rheumatism and excessive drinking. The disease usually terminates in death from rupture into the pericardium, eleven of the nineteen cases dying from this complication. In the others the aneurism was apparently benign, and was accidentally discovered at autopsy.

Diaphragmatic Hernia.

Grosser (*Wiener klinische Wochenschrift,* June 15, 1899, and *Medical and Surgical Review of Reviews,* London, July, 1899) reports a case of diaphragmatic hernia in a still-born child. At the necropsy the only organs found in the abdomen were the liver, lower part of the descending colon, kidneys, bladder, and right testicle. All the other organs lay in the left pleural cavity in a hernial sac. The heart and an enormous thymus lay entirely on the right side. Grosser, aided by the statistics of Lacher, Thoma, and Kaufmann, has collected 433 cases. He classifies diaphragmatic hernia as congenital and acquired, each of these classes being subdivided into true and false. There still remains another form,—the cases of congenital eventration. Of the acquired cases true hernia is very rare, no case having been recorded during the last twenty years. They occur through parasternal spaces in the musculature of the diaphragm, and were called by Thoma parasternal hernia. The false acquired herniæ are usually traumatic and almost always occur on the left side; no case of this form on the right side has

been recorded in recent literature. True congenital herniæ are much rarer than false, and both are more frequent on the left side. In the majority of the cases there is no true sac. Congenital diaphragmatic herniæ result from malformations of the diaphragm. Clinically, in cases of dextrocardia in the new-born, diaphragmatic hernia should be thought of. Operative reduction is usually prevented by the insufficient capacity of the abdominal cavity.

A full bibliography is appended to the paper, giving the salient points in each communication.

The Distribution and Origin of Tuberculosis in Children.

Guthrie (*Lancet,* February 4, 1899) draws the following conclusions from his notes on seventy-seven post-mortem examinations, made on children dying from tuberculosis in the Children's Hospital, Paddington Green, during a period of eight years:

(1) Thoracic tuberculosis in children is more common than abdominal, in the proportion of three to two.

(2) Tabes mesenterica, as a cause of death in young children, is practically unknown.

(3) Preponderance of thoracic over abdominal tuberculosis is not necessarily and solely due to the direct entry of bacilli into the air-passages. In addition to this mode of infection, the lungs may be affected (*a*) by bacilli entering the thoracic glands through the lymphatics of the pharynx, tonsils, and esophagus above, and through the lymphatics of the intestines and the abdominal glands below, and (*b*) by the entry of bacilli through the thoracic duct into the pulmonary circulation, *via* the right heart.

(4) Primary infection through the alimentary tract does not prove that food has been the sole source of evil. Therefore, tuberculosis in children is not likely to be materially checked by purification of the milk-supply alone.

(5) The alleged increase of tuberculous meningitis of late years is probably due to pulmonary tuberculosis set up by severe epidemics of measles.

DERMATOLOGY.

UNDER THE CHARGE OF

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ASSISTED BY

M. B. HARTZELL, M.D.

A New Treatment of Lupus by Internal Medication.

Philippson (*Dermatologische Zeitschrift,* Band vi, Heft 3), as the result of his experience in several cases, concludes that sodium fluoride, when taken internally, exerts a healing influence upon lupus. On account, however, of its collateral effects upon the stomach, such as nausea, loss of appetite, and aversion to

the drug, the necessary dose—0.1 gramme, three times daily—cannot be taken sufficiently long to produce complete healing. It is advisable, therefore, to employ another fluorine preparation, which is well borne and active, parafluorbenzoate of sodium, which may be given in doses of 0.5 gramme, three times a day. It is also suggested that trial be made of this remedy in other tuberculous processes.

Skin Eruptions occurring during Nephritis.

Scott (*British Journal of Dermatology,* July, 1899) reports five cases of nephritis accompanied by cutaneous eruption. In the early stage of the eruption it existed as a papular erythema with a tendency, later, to become confluent. It first appeared on the arms and chest, later on the legs and abdomen, and finally became generalized. It subsided in a week, being followed by desquamation resembling that seen in a general exfoliative dermatitis. In one case a part of the eruption was urticarial, in another petechial, and in a third vesicles were present upon the neck, shoulders, and bend of the elbow; but upon the whole, the eruption maintained its leading features. In the first case the rash could not be distinguished from a general exfoliative dermatitis. Scott believes these eruptions to be due to something other than uremia, a toxin, in his opinion, being the most probable cause.

A Peculiar Form of Iodide Eruption affecting the Skin and Mucous Membrane of the Stomach.

Neumann (*Archiv für Dermatologie und Syphilis,* Band xlviii, Heft 3) reports a case of unusual iodide eruption, occurring in a man the subject of subacute Bright's disease with cerebral hemorrhage. The eruption was severe and extensive, affecting chiefly the face, resembling the cases of dermatitis tuberosa, reported by Taylor, Pellizzari, Hyde, Besnier, and Hutchinson. At the autopsy an eruption, wholly analogous to that present upon the skin, was found occupying the pyloric region of the stomach. The author believes that the great intensity of the exanthem may be explained by the existence of the nephritis which injuriously affected the vitality of the skin.

Diseases of the Nails, with Special Reference to their Significance as Symptoms.

Jonathan Hutchinson (*British Journal of Dermatology,* August, 1899), in a paper read before the Dermatological Society of Great Britain and Ireland, calls attention to some affections of the nails, particularly to those which follow severe illnesses. The infrequency of the well-known transverse furrows which occasionally result from acute severe disease is believed to be due to the fact that these furrows are only produced in thick nails. They are mostly marked in the thumb-nail, next in the forefinger, and gradually shade off from the thumb to the little finger. In rare cases these furrows may be replaced by white lines. An instance is referred to in which a linear hemorrhage occurred at the root of all the nails in a woman the subject of hemiplegia. A case is reported in which vertical ridges were produced; and these multiplying, led after a time to destruction of the nail. The author has also observed cases in which the nail

breaks up without any pain; the nail-bed becomes dry, and the nail-fold is drawn forward on to the nail-bed, producing a condition like pterygium of the conjunctiva. True psoriasis of the nails is always of the same type,—an inflammation of the nail-bed causing loosening of the nail. The proposition is advanced that a great many cases of psoriasis occur as psoriasis of the nails alone, the skin not being affected. Attention is called to a senile form of psoriasis of the nails of great severity, accompanied by inflammation of the ends of the fingers and accumulation of epidermis beneath the nails.

The interesting fact is referred to that in acromegalia the nails do not enlarge at all, although the fingers are very much enlarged; but in the false form of acromegalia, occurring in connection with disease of the chest, in which the fingers become enlarged, the nails grow to an enormous size.

Eruptions in Gonorrhea.

Buschke (*Archiv für Dermatologie und Syphilis,* Band xlviii, Heft 3), who has recently studied this subject, finds that the forms of eruption occurring in gonorrhea are extremely manifold. Simple erythema, papules, deep infiltrations resembling erythema nodosum, bullæ, hemorrhages, excessive cornification are some of the forms of gonorrheic exanthem. These eruptions do not affect any special region, but may occur on any part; the scalp, however, is seldom attacked. In quite acute eruptions the mucous membranes of the mouth, throat, and eyes are not spared. They usually arise quickly, but their subsequent course is very variable; and they may or may not be accompanied by febrile phenomena. In some instances the course of the temperature is extraordinarily like that of malaria. As to the pathogenesis of the exanthemata occurring in the course of gonorrhea. the author believes that these eruptions are in direct relation with the primary disease, being caused by the entrance of the gonorrheic poison into the circulation.

A Case of Favus of the Penis.

Glück (*Archiv für Dermatologie und Syphilis,* Band xlvii, Heft 3) reports the following unusual case: Upon the side of the penis of a man, 33 years old, and upon the upper portion of the external surface of the foreskin, were several lentil to bean-sized, round, and oval, dry, sulphur-yellow crusts with elevated edges and depressed centres. Upon the inner surface of the foreskin and the corresponding part of the sulcus and corona were similar crusts, which extended along the side of the glans forward to the meatus, which they surrounded. No trace of the disease was to be found elsewhere upon the body. Upon microscopical examination the crusts were found to present an almost pure culture of the achorion fungus. The author regards this case as a new proof of the correctness of Pick's view, that favus is not confined to parts provided with hair.

[Hardy has quoted Bazin as having seen a case of favus of the glans penis. In this case, however, with the aid of a lens, a minute hair was seen piercing the centre of the favus crust.]

CORRESPONDENCE.

ON THE ETIOLOGY OF MALARIAL FEVER.

NEW YORK, August 24, 1899.

To the Editors of UNIVERSITY MEDICAL MAGAZINE:

DEAR SIRS,—How are the following facts belonging to my personal experiences to be explained by the theory of Mr. Andrew Davidson of dependence of malarial epidemics on soil disturbances?

In Japan there are serious outbreaks of malarial fevers immediately after the rainy season,—that is, the end of August and the beginning of September. There cannot be at that time any soil disturbance; it is the quietest period in the year for the soil, all the rice-plots being flooded.

In Kansas, where I practised five years, a country of prairies, the outbreaks of malarial fevers take place at the end of August and last through September. The corn-fields then have not been disturbed yet for the fall wheat-planting. On the other hand, in the spring, the "breaking" of new ground is made by oxen; that ground has laid dormant for centuries, if ever it was awake at all; its soil is in some places five feet deep. Repeated growths of grass, of shrubs, have been yearly burnt off by prairie fires. The disturbance of this soil to my knowledge is not followed by malaria.

In New York City, whose soil is rock and sand, there is no malaria but what is imported. The rock and sand are continually disturbed by building, by new traction lines, etc. In 1888, 1894, and 1899 we have had summer malaria, and I think this exceptional state of things is easy to explain; we had at those epochs a peculiar spring and summer, hot suns and very cold nights, 20° to 30° between the temperatures of night and day. Every fall some malaria is imported into New York by people returning from *Villeggiature*.

Not so very much more than a stone's throw, right across the Hudson River, is New Jersey, the country notoriously malarial by its Newark meadows; and you know all the fun that is made out of the "Jersey Mosquito." The soil there is not any more disturbed than in New York. That soil is untillable meadow or sand. What difference between these two districts, New York and New Jersey, causes the presence of malaria in one and its absence in the other? I have not the least doubt that the difference consists in the multitudinous

presence of mosquitoes in New Jersey, and their nearly complete absence in New York. .

Japan is another example of the more than probable connection of the mosquito with the outbreaks of malaria. For, after the summer rains, the Japanese mosquitoes rise from the damp earth in clouds, and men have to protect not only their persons, but the furniture, the whole room, by square nettings hanging from the centre of the ceiling.

In Kansas the connection between mosquito and malaria seems to me evident. The mosquito season there is the early fall and end of August, when the nights get cool and the sun is still hot. Moisture, that is dew, is generated, and from that moisture rises the mosquito.

The Mississippi Valley Association of Physicians came to the conclusion, thirty years ago, that a fall of temperature of 20° to 30°, between night and day, was necessary for the production of an epidemic of malaria. If you add to this declaration of the Mississippi investigators that such a fall generates moisture, which in its turn generates mosquitoes, Surgeon-Major Ross, Grassi, Mauson, and last and *littlest*, Koch, can claim even the conclusion of the Mississippi physicians as a good clinching of *their* argument.

ALBERT S. ASHMEAD, M.D.

MISCELLANEOUS.

DANGER SIGNALS OF THE PRE-ECLAMPTIC STATE.

C. JEWETT (*Brooklyn Medical Journal*, Vol. xiii, p. 468, August, 1899) points out that eclampsia is conceded to be a preventable complication of pregnancy and labor, and that it is unknown in the practice of obstetricians of special training, although it is prevalent in general practice. It follows that its danger signals are not sufficiently appreciated by the general practitioner. The first indication of danger must be sought in the urine, for the nervous phenomena of the pre-eclamptic state imply a degree of intoxication which in the vast majority of cases must have been preceded for several days or weeks by faulty urinary excretion. The presence of albuminuria is undoubtedly of great value, but unfortunately too many physicians trust to it alone, and this is made worse by the fact that, as a rule, the examinations are made only at long intervals. With regard to the urea, the medical man may usually feel secure so long as the urea elimination is near the normal—400 or 500 grains *per diem*—and special vigilance is demanded when

there is a marked falling off in the quantity. But it is to be remembered that it is not alone an absolutely reliable guide. A most important and too frequently neglected element in the prognosis as relates to the pre-eclamptic state is the daily quantity of urine. If every gravida, says Jewett, were taught to measure the urine once or twice weekly during the later months of pregnancy, and duly impressed with the necessity of keeping it at or above three pints *per diem*, convulsions in childbed would be almost unknown. Personal experience leads him to believe that even in the presence of albuminuria and diminished urea excretion eclampsia will not occur so long as the volume of urine can be maintained at about seventy ounces in twenty-four hours. In the discussion which followed the reading of Jewett's paper before the Brooklyn Gynecological Society, Dr. Polak pointed out that it was difficult to make patients, especially women, drink enough water; and Skene emphasized the association of chlorosis and eclampsia.—*British Medical Journal.*

BOOK NOTICES.

TEXT-BOOK OF OPHTHALMOLOGY. By DR. ERNEST FUCHS, Professor of Ophthalmology in the University of Vienna. Authorized translation, revised from the seventh Enlarged and Improved German edition. By A. DUANE, M.D., Assistant Surgeon, Ophthalmic and Aural Institutes, New York. Second American Edition. New York: D. Appleton & Co., 1899.

The first edition in English of this important work was a translation of the second German edition. In reviewing this we said: "The work of Dr. Fuchs throughout its whole extent is characterized by the admirable method with which he classifies his subject; the lucid and faithful descriptions with which he invests the typical forms of disease, and the depth of his investigations into their pathology. He traces with unerring hand the connection between the clinical symptoms and their pathological origin with a boldness that none could assume without complete knowledge of the subject." Since this time five editions in the German have appeared, each having been revised, improved, and brought up to date.

The present edition is a translation of the seventh German edition, and is undoubtedly one of the best books of its size on the subject of ophthalmology. As we said in speaking of the first volume, "Dr. Fuchs is not only an author, he is also an authority." We can feel sure, therefore, that he has given us in this book what is latest and best concerning the eye and its diseases and abnormalities. The same

favorable comment which we made upon the work of the translator, Dr. Duane, in referring to the first edition is equally deserved in the present instance.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D. Volume II. June, 1899. Philadelphia and New York: Lea Brothers & Co., 1899.

The second volume of this work, which fully maintains the high standard set by the first volume, is devoted to a consideration of surgery of the abdomen, by Dr. William B. Coley; gynecology, by Dr. John G. Clark; diseases of the blood, diathetic and metabolic disorders, diseases of the spleen, thyroid gland, and lymphatic system, by Dr. Alfred Stengel; and ophthalmology, by Dr. Edward Jackson. Unlike most digests, this work does not merely set forth a heterogeneous array of abstracts, but presents a well systematized discussion of the most important contributions to the literature in every department of medicine.

The contributors, without exception, are men especially fitted to pass judgment upon the vast amount of new material which is yearly offered to the profession, and to select therefrom what constitutes the real advances. With a work of this kind available there is no excuse for the most busy practitioner failing to keep fully abreast of the times.

Massage and the Original Swedish Movements. By Kurre W. Ostrom. Philadelphia: P. Blakiston's Son & Co., 1899.

The success of this manual is attested by the appearance of a fourth edition. The author is a well-known practical masseur and teacher of massage, and is, therefore, well qualified for the task of writing upon this subject. The text is presented in a manner that is easily understood, while the liberal use of illustrations serves to still further simplify the subject. No amount of theory will supplant the necessity of a thorough practical training, which should be carried out under the personal direction of a competent teacher, but as an addition to this course and for those who wish to learn the elements of massage and Swedish movements this work will be found a very satisfactory guide.

A Text-Book of Mechanotherapy. By Axel V. Grafstrom, B.Sc., M.D. Philadelphia: W. B. Saunders, 1899.

Under the title of mechanotherapy Dr. Grafstrom describes briefly the subjects of massage and medical gymnastics. About one-half of the 139 pages comprising this volume is devoted to general considera-

tions of the principles involved, while the balance is occupied with the application of these principles to special diseases, or to diseases of special systems of the body. Thus are considered rheumatism, gout, chronic constipation, diseases of the heart, of the respiratory organs, the urinary organs, the nervous system, etc.

The book will be useful to nurses in carrying out the directions of physicians, and to physicians as well, that they may the more intelligently direct this important addition to the treatment of disease.

American Pocket Medical Dictionary. Edited by W. A. Newman Dorland, A.M., M.D. Second Edition, Revised. Philadelphia: W. B. Saunders, 1899.

This is a book of suitable size for carrying in the pocket, neatly bound in leather, with gilt edges, and alphabetical thumb index. The first edition was exhausted within six months from its appearance. In the present edition the few typographical errors that were overlooked in the first have been corrected, and such new medical terms as have appeared since the first publication have been added.

The Sixteenth Report of the State Board of Health and Vital Statistics of Minnesota. St. Paul, Minn., 1898.

This very creditable report illustrates the value of well equipped public laboratories and an energetic and progressive public sentiment which encourages the efforts of the scientific men who labor on its behalf.

The quality and amount of original research work and sanitary medicine compiled in this volume are far ahead of the general run, and stamps the State of Minnesota as possessing a keen public appreciation of such scientific labor and a desire to foster and support it.

Such a spirit cannot be too enthusiastic where it encourages and supports original research of the character which the original papers published in this report show is being performed by this State board. A wise comprehension of the value of such work would be of great value to all communities, while the establishment of such laboratories and their generous aid to the profession in the community can but work immeasurable good.

20 NOV 99

UNIVERSITY

MEDICAL MAGAZINE.

NOVEMBER, 1899.

COMPLICATED CATARACT.[1]

By S. D. Risley, A.M., M.D.,

PHILADELPHIA,

Attending Surgeon, Wills Eye Hospital; Professor of Diseases of the Eye, Philadelphia Polyclinic and College for Graduates in Medicine.

I bring before you for study to-day a group of cases which illustrate one of the phases of complicated cataract. No class of patients require more careful management at the hands of the ophthalmic surgeon, or present greater difficulties to his art. The expression "complicated cataract" should be used as indicating degree of complication rather than to imply a separate category, since it is probable that all opacities of the lens are due to pathologic conditions of the fundus, which should be regarded as complications. In a large percentage of cases, however, the disease, which has disturbed the nutrition of the lens and produced the cataract, subsides after the opacity is far enough advanced to partially exclude the light, and to prevent the use of the eyes. The complicating inflammation has therefore for all practical purposes been removed, and need not be considered in the surgical management of the case.

In the group before us the conditions are quite different. There are four patients all presenting essentially the same condition,—viz., partial opacity of the lens with choroiditis, vitreous opacities, and posterior polar or capsular cataract, with steadily extending opacity of the lens cortex.

Since they each illustrate the same condition, I will ask you to study in detail but one case, that of a physician, whose habits of obser-

[1] Clinical lecture delivered at the Polyclinic Hospital, October, 1899.

vation have enabled him to give a more careful history of the progress of his trouble.

He has come to us from the southern Mississippi valley for advice. He is 66 years of age, and, although a busy practitioner for forty years, has enjoyed good health, with the exception of a severe attack of "bilious fever," occurring during the Civil War, while a surgeon in the Confederate service. He says that his eyes were perfect until about four years ago; that he did not use glasses until his forty-seventh year; that he never suffered from headache or weak eyes, and thought his distant vision was more acute than that of most of his friends. As having some bearing upon this statement and the subsequent history it is interesting to note that the ophthalmometer reveals 1.50 diopters of corneal astigmatism. He thinks that he wore his reading glasses for about seven years and then discarded them, finding that he was able to read better without them, and that for a year or more he could read the finest print with ease, and would constantly do so far into the night, but that he would have frequent attacks of pain in the eyes with a sense of post-ocular tension, the pain shooting to the occiput. He then observed a progressive failure of vision, both for near and distant objects, but was unable to read until three years ago, at which time he consulted an ophthalmic surgeon, who told him he had cataract, but that nothing could be done until the opacity was complete. There has been but little if any change so far as he can tell, during the last three years, except that he is now free from pain. While sitting with his back to the light V.= 1/60 in the right eye, and 1/50 in the left. Facing the light the pupils close, and he is unable to count fingers. The irides react promptly and the tension is normal. There is a white reflex from both pupils, and with oblique light the lenses present a homogeneous opalescent appearance,—that is to say, the sectors of the lens as seen in most hard cataracts are not visible. When a strong light is thrown into the eye from the ophthalmoscopic mirror a gray-red reflex from the fundus is obtained, brighter at the periphery of the pupillary area than at its centre. When viewed at the focus of a +6 diopter, the lens nucleus is seen to be cloudy and granular, but through it, as in a fog, can be made out a star-like opacity on the posterior capsule, with radiating streaks of opacity projecting towards the periphery. No view of the fundus can be obtained, but through the periphery of the pupil floating vitreous opacities can be made out moving with the rapid movements of the balls.

It is obvious that we are confronted in this case with serious complications. The patient is debarred from the pursuit of his profession by his impaired vision, indeed, he is able to get around with the greatest difficulty, and therefore is urgently in need of surgical help.

Before attempting the extraction of the cataracts we are forced to consider first of all that the eyes are subject to chronic choroiditis, and therefore that they are more liable to disaster from surgical interference. That this has been reduced to a minimum by the three years of comparative rest is rendered probable, but, nevertheless, the rapidly floating vitreous opacities indicate the presence of a more or less fluid vitreous, which is liable to be lost in any attempt to extract the lens. To add to the difficulties, the anterior cortex, indeed the greater part of the lens, is not opaque, and therefore presents all the drawbacks which cluster about the attempts to extract an immature cataract. It would be difficult at best to free the lens capsule completely of its contents. If this should be successfully accomplished, which is improbable, we still have to contend with the opaque posterior capsule, which, in the ordinary procedure for the extraction of the lens, would be left in the eye, and that too directly in the pupil to obstruct the vision.

It is plain, therefore, that we are confronted by a most annoying complication, not only in the case of the physician but in each of these cases, since they all present the same difficulties so far as any operative procedure which may be adopted is concerned. We can undertake either of the usual operations for extraction with the definite understanding that a subsequent operation upon the remaining opaque capsule will be required. It should be remembered, however, that the membrane will be tough and inelastic, and that such operation is both difficult and fraught with many dangers. Moreover, experience teaches that it is often very disappointing. Some procedure for ripening the remaining opaque cortex might be adopted, but my own experience with such operations has been unsatisfactory. In a series of twenty-five operations for ripening the partially opaque lens I found that the procedure was either a partial or complete failure in rendering the cortex opaque. In some instances, while the anterior cortex became white after rubbing, either directly or through the cornea, that the posterior fibres remained transparent and remained in the capsule invisible at the time of extraction, subsequently to be rendered opaque by contact with the aqueous humor. In those cases where the fibres of the lens were opaque throughout the attempt to extract later was rendered extremely difficult by the tenacious adherence of the lens to the capsule; indeed, it often adhered with glue-like tenacity which was quite exasperating. I have therefore abandoned all attempts to ripen immature cataracts, preferring very much to encounter the difficulties presented by the partially opaque lens. In adopting this course you will avoid also the dangers of the ripening operation. The other procedure, which may be chosen, is to extract the lens in its capsule. This is, of course, fraught with the danger which follows the introduction of an instru-

ment so deeply into the eye and from loss of a fluid vitreous. Even when successfully accomplished, this operation is, I think, prone to be followed by chronic degenerative processes, in the uveal tract, which leads to serious impairment of vision. The difficulties of the operation, and its dangers also, are reduced to a minimum if a preliminary iridectomy is performed.

I have advised this in these cases, to be followed after a few weeks or months by extraction in the capsule. This procedure presents a number of advantages. In the first place, in the case of the doctor, the iridectomy will probably improve his vision by allowing the light to enter the eye through the comparatively transparent periphery of the lens. Indeed, he may then be able to get about with greater facility, and will not desire to undergo the risks of extraction. Then, too, after the iridectomy, we may find that the remaining lens-fibres will rapidly become opaque. I have seen this in many instances.

If this does not follow, the therapeutic results of iridectomy over such eyes is often very beneficial. In any event, we shall have one of the most troublesome features of a compound extraction out of the way and the operation rendered much more simple. This method has for these reasons been advised. All things considered, I believe it to be safer than either of the other methods to which I have called your attention.

Intervention in Lesions of the Posterior Mediastinum.

Stoyanov gives the credit of first advocating the opening of the posterior mediastinum to the Russian Nassilow. This observer, on the basis of experimentation upon the cadaver, determined that foreign bodies in the upper portion of the esophagus or tumors situated there could be most readily reached by resection of from the third to the sixth rib on the left side, and the removal of the lower ribs upon the right side for reaching the lower portion of the esophagus. Stoyanov reports twelve cases operated upon for acute phlegmonous inflammation of the posterior mediastinum, due to tubercular disease of the vertebral column, one case of mediastinal tuberculosis, originating in the sternum, one case each of carcinoma, cicatricial stenosis, and foreign body of the esophagus. In five cases the pleura was uninjured; three cases died as a result of the operation; seven were cured; in six the result is not mentioned.—*Revue de Chirurgie,* March, 1899, p. 388.

CLINICAL NOTES FROM THE GYNECOLOGICAL SERVICE OF THE HOWARD HOSPITAL.

By Barton Cooke Hirst, M.D.,

PHILADELPHIA,

Professor of Obstetrics, University of Pennsylvania.

Congenital Absence of the Vagina.—A young woman, married, was brought to the hospital by Dr. E. E. Neff, of Altoona, Pa., on account of congenital malformation of the vagina. On examination the

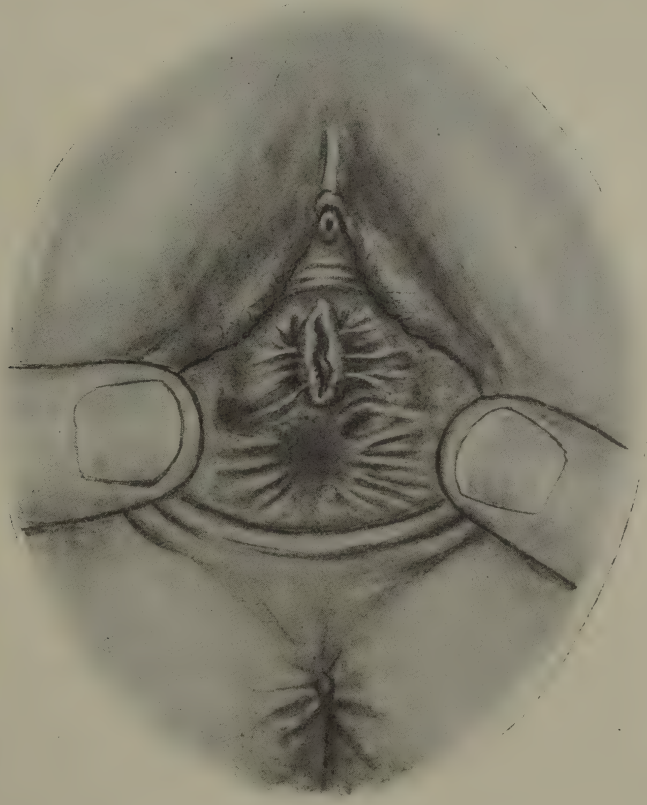

Fig. 1.—Congenital absence of the vagina

condition shown in Fig. 1 was seen. It was possible to push the forefinger between the rectum and bladder for a distance of more than an inch, by depressing the skin at the seat of what should have been the

vaginal entrance. By a combined examination with a finger in the rectum and pressure upon the abdominal walls, a body resembling the uterus could be felt in the pelvis, and to the right of it was apparently an ovary.

There had, of course, been no menstruation and no vicarious discharge. After marriage, however, there had been menstrual molimina, with a fair degree of regularity, associated with considerable pain in the lower abdomen. Coitus after marriage had been frequent, but the woman, according to her statement, experienced no sexual excitement. In view of the menstrual molimina, the physical signs of a uterus and an ovary, and the bare possibility of establishing a communication between the uterine cavity, should there be one, the ovary and the external genitalia, it appeared justifiable to attempt the formation of a vagina.

Being obliged to perform several plastic operations on one operating day, among them one for complete prolapse, I decided to try Mackenrodt's proposition,—namely, to implant the vaginal mucous membrane from the case of prolapse into the artificial vagina, made by blunt dissection.

Two broad and thick flaps of mucous membrane were dissected from the anterior and posterior walls of the prolapsed vagina, and were kept immersed in a warm sterile normal salt solution. The operation for prolapse was then rapidly completed. Next in the patient with absence of the vagina, a blunt dissection was made between bladder and rectum till the rudimentary uterus was reached. The mucous-membrane flaps were sewed loosely together with catgut, side by side, over a cylindrical speculum, so that they completely surrounded it. Two catgut sutures were passed from the edges of the flap over the end of the speculum, which was then packed with iodoform gauze. The speculum, covered by the flaps, was inserted three inches into the artificial vagina: pressure being made upon the gauze packing with a forceps, the speculum was then withdrawn, leaving the packing and the flaps in place. The former was allowed to remain undisturbed for two weeks. When it was removed the mucous-membrane flaps in the deeper portion of the vagina were found to adhere and bleed when pricked. The lower portion of the flaps overlapping the skin of the vulva, which had been pushed into the vagina, later sloughed and were extruded. (Fig. 2.)

The patient had been instructed to report to her physician regularly for a dilatation of the vagina, if there should be, as there always is in such cases, a disposition to contract. She failed to do so, however, and about six months after the operation the artificial vagina, according to Dr. Neff's statement, had again closed. But, curiously

enough, the patient and her mother declared that there had been a regular menstrual discharge after the operation, and they are both firmly convinced that the woman is now two months pregnant. She has much improved in health since the operation, being free from abdominal pain and putting on about twenty pounds in weight. It is the latter fact and the deposition of fat on the omentum and abdominal walls, no doubt, that has led her to believe herself pregnant. In the operation the uterus was found to be of fair size, to possess a well-defined curve, but no uterine cavity. This case has apparently met the fate of all

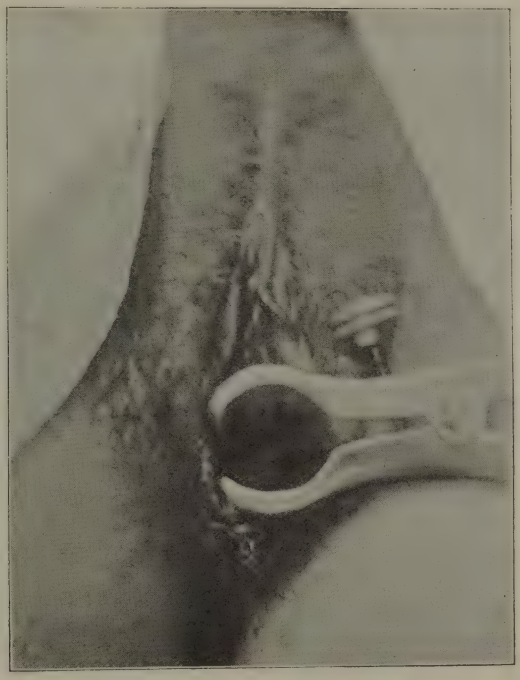

FIG. 2.—Three weeks after operation for artificial vagina and implantation of vaginal mucous membrame; speculum inserted three inches.

attempts to establish an artificial vagina with rudimentary or absent sexual organs. As a rule, such attempts are unjustifiable, but in this instance there seemed to be sufficient evidence of internal sexual organs fairly well developed to warrant the attempt.

Recto-Vulvar Fistula, probably due to Violence in Coitus.—The patient, aged 25 years, an Italian and single, was brought to the hospital by her *fiancé*, who claimed that another woman had told him his betrothed was deformed in her sexual organs. The woman herself, who could not speak English, and was not remarkable for intelligence,

stated that her father had syphilis, and that she had her present trouble ever since her birth. (Fig. 3.) On examination there was found, to one side of and below the hymen, an opening communicating with the rectum. It had nothing whatever in common with "anus vestibularis," but looked exactly like a case I saw some twelve years ago, in which the vulvo-rectal septum had been perforated at the first coitus, leaving an intact and thick hymen guarding the unpenetrated vagina. Coitus had taken place regularly for more than a year through this unnatural opening.

It is possible, of course, that the Italian woman might have had, in early childhood, an ulceration or abscess in the vulva, opening into the

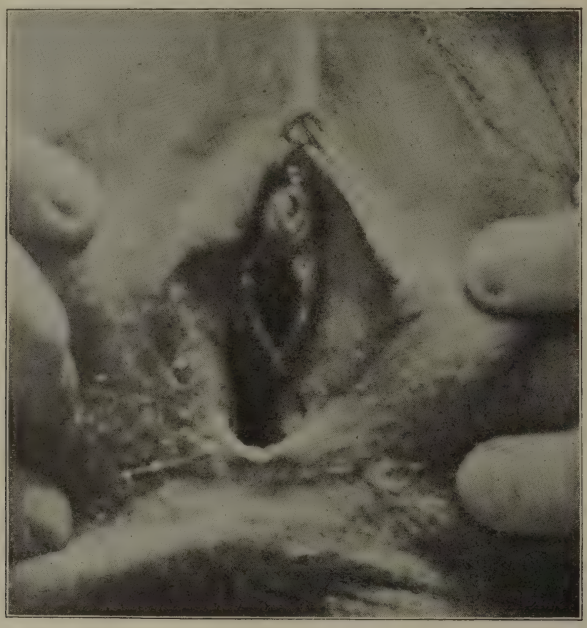

FIG. 3.—Vulvo-rectal fistula, probably due to violence in coitus.

bowel, but the appearance of the fistula and its situation strongly suggested violence in coitus.

During my absence, in the summer, the fistula was successfully closed by my assistant, Dr. W. F. Sprenkel.

Ovarian Cyst, infected and inflamed, removed in the Puerperium. —Mrs. M., delivered for the second time with forceps four weeks before her admission to the hospital, was discovered, two weeks after delivery, to have a large tumor in the upper part of the abdomen, supposed to be an abscess the result of infection. Her physician, Dr. J. V. Kelly, of Manayunk, on his return from a journey, found her in a

very bad condition, and immediately sent her to the hospital. The patient had, on admission, high fever, rapid pulse, and was profoundly reduced. She exhibited the appearance, on inspection, shown in Fig. 4. The vaginal examination was entirely negative, the tumor being far out of reach above the pelvis. At the operation a large ovarian cyst was discovered adherent to the liver and adjacent structures. It had evidently been carried to the upper abdomen by the ascent of the pregnant uterus, and had been fixed there by inflammatory adhesions. The uterus in its involution descended to a normal level, leaving the ovarian tumor in the upper half of the abdomen, but attached to the broad ligament by an enormously elongated pedicle. The removal of the tumor was difficult, but was rapidly accomplished, and the patient made an uncomplicated recovery. This case suggests the interesting question of the treatment of ovarian tumors complicating the childbearing pro-

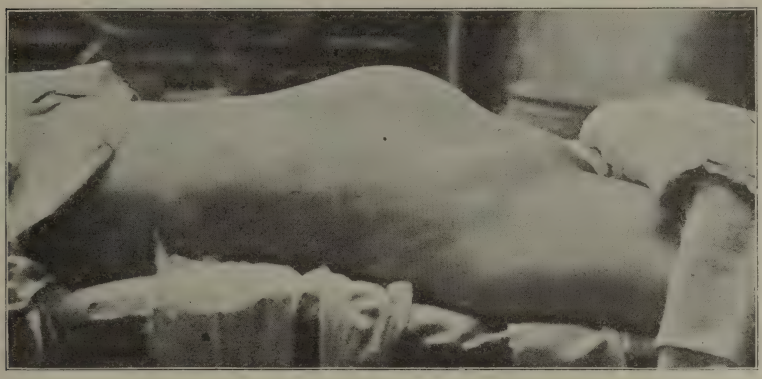

FIG. 4.—Multilocular ovarian cyst, removed four weeks after confinement.

cess. From an experience of seven operations on six individuals, I should answer it at present as follows: Remove an ovarian cyst if discovered during pregnancy up to the fifth month; after that time, for fear of exciting labor on top of an abdominal section, wait till term; disregard the tumor if it is out of the way; if it is in the lower genital canal push it out of the pelvis by gentle taxis; but if it obstructs labor and cannot easily be displaced, perform a coincident Cesarean section and ovariectomy. In the puerperium watch a patient with an ovarian cyst very carefully. On the first appearance of fever, rapid pulse, or abdominal pain, open the abdomen and remove the tumor, without waiting for indubitable evidence of the infection of the cyst. Late operations for this condition are very uncertain, the patient often dying of septic intoxication, although the suppurating cyst is removed whole, without rupture; early operations ought always to be successful. No matter how des-

perate the patient's condition, however, an attempt should be made to save her by operation. I have twice succeeded in late operations under apparently hopeless conditions.

Large Fibromyoma of the Uterus, simulating in Form, Consistency, and Clinical History an Ovarian Cyst.—The morphology of abdominal tumors is a useful study from the diagnostic view-point. I have a large collection of photographs of the different abdominal growths known to surgery, many of which are quite characteristic in form. But occasional exceptions to the rule may easily lead an experienced observer astray unless he is constantly on his guard. Fig. 5 is a good illustration of this fact. Mrs. B., a patient of Dr. William H. Crane, of Philadelphia, was 42 years of age, with five children.

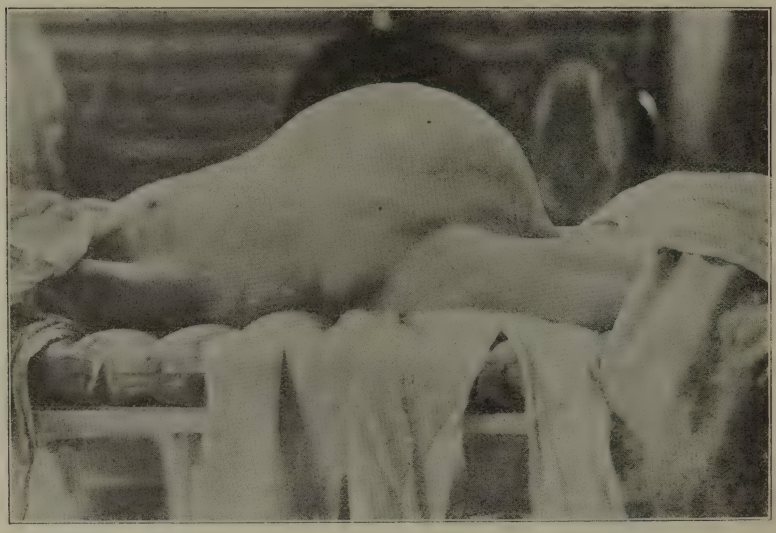

FIG. 5.—Large multilocular fibroma, showing characteristic emaciation of patient.

Her menstruation had always been regular, lasting three days and scanty. She had never had metrorrhagia or menorrhagia. Four years ago she first noticed an abdominal enlargement, which rapidly increased. For the year preceding her operation she had been incapacitated by the weight and pressure of the abdominal tumor. Her emaciated appearance, the spherical form of the tumor and its consistency suggested strongly an ovarian cyst, but the operation proved it to be a large intramural fibromyoma weighing nearly thirty pounds. The woman made a perfect recovery.

Tubal Gestation advanced to the Fourth Month, and retained Unruptured in the Abdomen for Seven Months.—Mrs. B., aged 34, married nine years, never before pregnant. Last normal period in

April, 1898. In June a slight bloody discharge followed by excruciating abdominal pain, lasting eight hours. A week later another exacerbation of pain; for the next six weeks there were attacks of pain every two or three days, completely disabling her. The flow continued for *five months,* the greater part of the time as a muddy discharge. In November a severe uterine hemorrhage occurred, followed by a profuse flow, lasting two weeks. In the following months the periods were practically normal. The patient finally came under the observation of Dr. J. M. Brown, of Philadelphia, who made the correct diagno-

Fig. 6.—Removal of tube and four months' fetus.

sis. On examination a large solid tumor was felt to the right of the uterus and adherent to it. (Fig. 6.) When the abdomen was opened there was no trace of intraperitoneal hemorrhage, and the gestation sac showed no evidence of rupture. The abdomen was closed without drainage, and the patient made an uncomplicated recovery. The interest of this case lies mainly in frequent exacerbations of severe and characteristic abdominal pain, without rupture of the sac or intraperitoneal bleeding. In the complete notes of thirty-five cases in my case-books, while pain is often the predominant factor and does not always

indicate a rupture with hemorrhage, there is no other case of pure tubal pregnancy in which so many exacerbations over such a long period of time, showing tremendous strain on the tubal wall, were not followed by actual laceration and some bleeding. In this particular, I think, the case must be a very rare one.

A SIMPLE PALLIATIVE OPERATION APPLICABLE TO OBSTRUCTING CANCER OF THE PYLORUS TOO EXTENSIVE FOR COMPLETE REMOVAL.

By Edward Martin, M.D.,.

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With the comparative safety of celiotomy, dependent on individual experience and proper cleanliness, has grown the belief, on the part of the medical profession, that surgical intervention is indicated in cases of gastric cancer as soon as the diagnosis is well established. Unfortunately, the diagnosis is rarely considered as positive till a palpable tumor has developed, by which time metastases or infiltrations have usually made a radical operation—that is, one which gives a fair prospect of radical cure by total removal of the diseased tissues—impossible. Moreover, the natural objection on the part of patients to subjecting themselves to a formidable operation, and one which they know is attended by a high immediate mortality, and by, at the best, an off chance for cure, serves as an obstacle to operation till intractable and exhausting vomiting and rapid emaciation have demonstrated to them the futility of palliative measures and the fatal progression of the disease.

Hence it happens that, when operation is finally decided on, the surgeon's work is confined to palliative rather than to radical cure; that the best he can promise is to relieve pain and vomiting, and to stay the course of the increasing emaciation and weakness by forming a passage through which the stomach contents can readily pass into the intestines. This end is usually accomplished by gastro-enterostomy, and since the patients who require this condition are usually in a condition of emaciation and exhaustion which little fits them to react from the shock of prolonged intra-abdominal manipulations, the bone plates or the Murphy buttons are often used as means which materially shorten the operative period.

The objections to these mechanical appliances as compared to the formation of an opening between the stomach and intestine by incisions and suture are too well known, and have too often been shown by post-mortem findings, to require recapitulation; not the least of these is the short circuiting of the stomach contents,—*i.e.,* its passage into the proximal loop and back towards the pylorus. A further objection to gastro-enterostomy and one inherent to it quite independent of the method employed depends upon the fact that the diseased stomach is given no rest; it is subject to the repeated congestion and motion incident to gastric digestion, and thus the growth of the neoplasm is stimulated with each feeding, and there is often little relief from either pain or vomiting.

It is well known that the operation of celiotomy is performed not only to relieve actual obstruction, but to retard the growth of cancer and to lessen the pain which it causes by diverting the fæces and thus preventing the constant stimulation incident to peristalsis, congestion, and the contact of foreign bodies. That the same end may be attained by switching out the stomach from the alimentary canal seems reasonable; and since I had Dr. Lewis Brinton's authority for the statement that life and health were both compatible without stomach digestion, I determined to attempt this operation on a case referred by him to me, in case radical operation proved impossible. The patient was profoundly exhausted and wasted as a result of incessant vomiting. The liver, both omentums, and the post-peritoneal glands showed cancerous nodules, and the pylorus was so firmly fixed that removal was impossible. The patient perished within forty-eight hours of operation.

On the same day I operated on a man in the Philadelphia Hospital, referred to me by Dr. Thomas G. Ashton. This man, 38 years old, was admitted to the medical wards, complaining of a persistent postprandial, dark-brown vomit, emaciation, weakness, and constipation. Though always a thin man, he had lost twenty-four pounds in five weeks, and his symptoms, beginning the last of July, had been rapidly progressive. This patient suffered excruciating pain, which was temporarily relieved by vomiting. A small, hard, movable tumor was felt above and to the right of the umbilicus. The lower cervical lymphatic glands were enlarged, but not more so than they had been for many years. He was treated for two weeks in the medical ward in the hope that by gastric lavage and careful dieting he might be made more fit to stand the shock of operation. The hope was not realized, his condition rapidly becoming worse. When he was transferred to the surgical ward, blood examination showed a hemoglobin percentage of 45. He presented the sallow cachexia, the feeble heart, and the emaciation of a man likely to die from even a slight shock or exertion.

Celiotomy showed a pyloric cancer with nodules in the greater and lesser omentums, and involvement of the post-peritoneal glands. A rubber tube of the calibre of a 40 French sound was laid on the surface of the first part of the duodenum, and six interrupted catgut sutures were so placed that by drawing them tight the portion of the tube in contact with the bowel was completely covered by a plication of the wall drawn up on each side of it. Between the fifth and sixth suture a slit was made through the bowel wall, and through this slit six inches of the tube were passed downward; the sutures were then tied, thus forming a long oblique channel, and one little likely to permit of leakage of the intestinal contents. The tube was fastened to the gut by a catgut suture passed through its wall; the peritoneum of the bowel at the point where the tube emerged from the channel made for it was sutured to the parietal peritoneum, and the wound was closed. Healing was prompt and uninterrupted.

The patient has since been fed through the tube at regular intervals with digested foods. He has steadily gained in flesh and strength, has vomited very little, and has had much relief from his exhausting pain. A judgment as to the merits of this operation, based upon such a limited experience, is, of course, unwarranted. On theoretical grounds, however, the following conclusions seem reasonable:

(1) When cancer has invaded the stomach, its course is hastened, and the pain it causes is increased by the congestion and motion inseparable from gastric digestion. Moreover, the contact of the ingesta and of the gastric juice act as direct irritants to ulcerating surfaces, and add to exhaustion and anemia by encouraging hemorrhage.

(2) The palliative treatment of gastric cancer has for its end the relief of pain and vomiting, and the prolongation of life.

(3) This is best attained by excluding the stomach from the digestive process. A common cause of death in obstructive pyloric cancer is starvation incident to the failure of the gastric contents to reach the intestine. This may be remedied somewhat uncertainly by gastro-enterostomy, but even though this operation attain such an end, the stomach is still subject to the constantly recurring congestion of digestion.

(4) Since the chemical and mechanical changes wrought on food by the stomach can be perfectly imitated without the body, there is every reason to believe, and clinical evidence to prove, that when food thus prepared is introduced into the upper bowel the functions of the stomach can be dispensed with entirely without harm to the patient.

(5) Food thus prepared can be introduced through an artificial opening made into the duodenum. An opening into the duodenum can be made easily, bloodlessly, and rapidly, and hence with less shock than can any form of communication between the stomach and bowel.

(6) To prevent leakage, unless there is need of great haste, this

opening is best made as in Witzel's method of gastrostomy,—*i.e.*, by folding a tube in the wall of the bowel, Lembert sutures being used for this purpose. At the bottom of the tunnel thus formed the tube is passed through a slit into the bowel lumen.

(7) In obstructing pyloric carcinoma of the stomach duodenostomy is always to be preferred to gastro-enterostomy. Even in cancer of the fundus beyond the reach of a radical cure duodenostomy will probably relieve pain and hemorrhage and delay the course of the infiltration.

(8) After duodenostomy, unirritating antiseptic and analgesic lavage of the stomach should form a part of the palliative treatment.

(9) This operation is also indicated in intractable ulcer of the stomach.

ACUTE CHOLECYSTITIS.[1]

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The following case is an interesting example of a condition that has received but little attention.

E. R., aged 27 years; single. Mother died at 47 from stomach trouble, had had ague a great deal (carcinoma?). Father well; two brothers and two sisters well. Patient had scarlet fever, whooping-cough, measles, and chicken-pox in childhood, but no other diseases. Has had no doctor since 1889, when she had the "grippe."

For more than a year before this illness pain was sometimes felt in the right iliac fossa (ovarian?). She used the sewing-machine a great deal and thought this was the cause of the pain. The patient retired apparently as well as usual, and was awakened during the night with a very hard chill, she got to sleep, but woke up again with a high fever, headache, and severe pain in the back. A physician was summoned on account of the excruciating pain in back; he gave a hypodermic injection of morphine at once, which gave some relief. On the same evening the patient vomited bile several times, and had severe abdominal pain; there was no bowel disturbance. On the following day the condition was about the same, but the pain was less severe.

[1] Read before the Altoona Academy of Medicine and Surgery, October 17, 1899.

During the next day, the vomiting continued, the pain in the abdomen was worse.

Bilious vomiting continued on the next day and pain was felt in the right side of the abdomen, decubitus was dorsal with the thighs flexed, she could not turn in bed on account of the pain. The abdomen was distended. Temperature 101.8° to 104° F. These continued much the same for the next five days. In the mean time the abdomen became much distended and tympanitic. On the eighth day of the illness the temperature was 105°. The vomiting ceased at this time. On the tenth day the distention was extreme; temperature 105°; pulse 150. During all this time morphine had been administered freely on account of the pain. Liquid diet had been given when her stomach would retain it. The bowels had been kept active with fractional doses of calomel. The attending physicians were at first undecided as to whether they had to deal with a case of appendicitis or of typhoid fever, but finally settled positively on the latter diagnosis.

I first saw the patient on the eleventh day of the illness. At this time the patient looked extremely ill, her expression strongly suggested that commonly observed in peritonitis. The pulse was 130; temperature, 103⅗° F.; respiration, 34. The abdomen was uniformly distended to a considerable degree and exquisitely tender to touch in every part; in fact, the jarring of the bed caused by walking across the floor of the room increased the pain, which was always present. The patient lay on the back with the knees drawn up. The abdomen was tympanitic everywhere, no areas of dulness could be made out. Palpation was negative, save that there seemed to be rather greater tenderness at some points than at others. This sign was entirely without value, however, as the points of greatest tenderness changed with each successive examination. It was never located at McBurney's point, or over the usual site of the gall-bladder, but the left iliac region, the right lumbar region, and the left hypochondriac region were successively found to be more sensitive to the touch than the other regions of the abdomen.

Rectal examination enabled me to determine that there was no circumscribed pelvic abscess, but there was a fulness and resistance in Douglas's pouch that suggested a collection of fluid under very light tension, such as might occur from a local peritonitis with fluid effusion, but without well-defined limiting adhesions, and the symptoms seemed to conform with such a condition. Vaginal examination did not add new light. The uterus was apparently normal in size and position, and was movable. There was no evidence of any abnormal condition of the tubes or ovaries, but the fulness before mentioned still existed.

It seemed impossible to reach a diagnosis more definite than that

the condition was an inflammatory one, probably appendicular in origin, with the accumulation of fluid in the pelvis, and an operation was therefore advised. It was impracticable to operate upon the patient where she was, and upon her own wish, and with the concurrence of the family, she was transferred to the University Hospital, although she seemed much too ill to be moved. She was here kept under observation for forty-eight hours. A study of the case during this time seemed to confirm the opinion already expressed, that the abdominal symptoms were the result of an appendicitis.

The previous pelvic examination was confirmed, and a careful study of the abdominal condition seemed to show an area of dulness in the right iliac fossa. The blood failed to give Widal's reaction; there was a marked leucocytosis. The operation was therefore undertaken. The usual incision for reaching the appendix was made, and digital examination showed an entire absence of any inflammatory process in the right iliac fossa; an examination of the pelvis also failed to reveal any abnormal condition. The incision was carried up for the purpose of examining the gall-bladder region. The hand being then introduced was rapidly carried up until this was reached and a large mass detected. The incision was still further enlarged and the mass fully exposed. On carefully separating a few adhesions, a sudden gush of purulent bile followed. Unfortunately no preparation was made for a bacteriological examination. The condition was then perfectly plain. After emptying the contents of the gall-bladder as much as possible, having previously protected the abdominal cavity by means of gauze tampons, a rapid examination was made for gall-stones, but none were found. A rubber tube was introduced for drainage, and gauze was placed about the gall-bladder to isolate it from the peritoneal cavity. The operation was concluded rather more hastily than was desirable, but the patient's pulse was reported to be 180 and failing, so that it was necessary to get her to bed as soon as possible. Reaction took place gradually, and by the second day she had improved so much that recovery seemed reasonably assured.

The temperature reached the normal point on the sixth day, but fluctuated somewhat each twenty-four hours. Bile flowed freely from the opening for several weeks. All of the symptoms gradually ameliorated, the biliary fistula was allowed to close, and the patient was gradually restored to her usual health.

After apparently recovering the patient was attacked with very severe abdominal pains. There was but little fever, there was no distention, and not sufficient tenderness to indicate any serious trouble. The pain was ascribed to the stretching or tearing of adhesions. These

symptoms all gradually passed off, and the patient is now in excellent health.

The importance of the affections of the gall-bladder is second only to that of appendicitis. Much has already been written upon gall-stones, but acute inflammation of the gall-bladder is just now beginning to receive its share of attention. "Idiopathic" peritonitis formerly occupied a prominent place in the literature of the surgical conditions of the abdomen. At the present time the term idiopathic, as applied to peritonitis, has almost, if not quite, disappeared. With the knowledge of the frequency of appendicitis which we now have, a very large number of the cases formerly called idiopathic peritonitis has been accounted for. Affections of the gall-bladder are responsible for a much smaller, though not inconsiderable, number of the remainder. The very interesting subject of gall-stones which has been so exhaustively studied will not be referred to here, and the equally interesting class of cases of inflammation of the gall-bladder which develops as a complication in the course of infectious diseases or which follows as an early sequel will also be omitted.

It is to the sudden acute cases that come on apparently during perfect health and frequently without any obvious exciting cause whatever, and which so frequently are difficult or impossible of diagnosis, that attention is here called. In fact, most of the cases of this class have not been correctly diagnosticated before operation. Even the surgeons of largest experience and of unquestioned ability have been deceived not infrequently. It is of inestimable value, however, to know of the various conditions that may give rise to certain symptoms. With the knowledge of the relative frequency of affections of the gall-bladder we shall bear this organ in mind in examining cases presenting acute intra-abdominal surgical conditions, and will less frequently overlook this source of trouble. Maurice Richardson has recently published a most valuable paper on acute inflammation of the gall-bladder which should excite hereafter a closer study of this subject. The present writer acknowledges his indebtedness to this source for many of the facts here presented.

Acute inflammation of the gall-bladder is undoubtedly always caused by infection with some form of micro-organism. There are probably a number of predisposing factors, but the exciting cause must invariably be a germ. We do not admit to-day an idiopathic peritonitis, and we cannot admit an idiopathic cholecystitis.

The manner in which the infection reaches the gall-bladder is of interest. But two routes seem possible, either from the duodenum through the common and cystic ducts, or through the blood-current. The former does not seem probable. As we shall see, almost, if not

quite, every case of acute cholecystitis occurs in a distended gall-bladder. If the distention exists before the inflammation, it shows that the duct is obstructed, and hence it would be undoubtedly as impassable to germs as to bile. If the ducts are patulous and discharging bile regularly, the current would seem to be sufficient to prevent any germs from travelling upward.

Richardson believes that obstruction of the flow of bile, whether from stones or other causes, predisposes to an ascending infection from the alimentary tract, and he quotes the experiments of Horman which show that ligature of the large bile-ducts favors rather than hinders infection. Are not these facts, however, susceptible of a different interpretation? Obstruction to the flow of bile results necessarily in distention of the gall-bladder, and this in turn interferes with the circulation of blood in its walls. A certain amount of distention may impede the venous return only and thus cause passive congestion, while a more marked degree would diminish the arterial supply and to a corresponding extent the vitality of the tissues. It is now generally accepted that various micro-organisms circulate in the blood more or less constantly, but that they are innocuous as long as the tissues are all healthy, and the circulation of the blood is normal. It is probable that micro-organisms cannot pass through the vessel walls or become attached thereto under normal conditions, but readily do so as the result of the changes that follow irritations of various kinds. This theory is not at all unreasonable when we recall that the blood-corpuscles and the serum act in this manner. It has been shown that the bacillus coli communis is absolutely unable to penetrate the healthy mucous membrane of the intestine, but if the latter be altered in any way, as from congestion or inflammation, it then readily escapes through this heretofore effective barrier.

Let a local irritation of any part occur either mechanical or chemical, and the resulting congestion and diminished resistance of the tissues at once offers a possible site for the germ to lodge and develop. Somewhat analogous are the experiments of Guyon, which show that germs may be injected into the bladders of dogs without causing cystitis; but if the urethra be ligated so that the bladder becomes distended, infection very promptly occurs. We also know that osteomyelitis, osteo-periostitis, and epiphysitis are frequently determined by a traumatism. In these cases the infection must come from the blood and is determined by the diminished resistance, as we call it, due to the injury. Distention of the gall-bladder, therefore, with interference of its circulation, or interference of its circulation from whatever cause, must be considered one of the chief predisposing causes of cholecystitis. Of course the presence of pathogenic germs is necessary to establish the inflammation.

Gall-stones may act as a predisposing factor in one of two ways,—either by obstructing the duct and thus causing distention, or by ulceration of the mucous membrane from pressure, which offers an avenue for infection.

It would seem that any one of a number of micro-organisms are capable of exciting an inflammation of the gall-bladder as is true of other structures.

The bacteriology of this affection, therefore, does not differ from that of appendicitis, osteitis, etc. The bacillus coli communis, the bacillus of typhoid fever, the diplococcus of pneumonia, staphylococci and streptococci have all been found in the inflamed gall-bladder, as well as a few other varieties less frequently met with. It is a most interesting observation that the typhoid bacillus has been found in the gall-bladder many years after the patient has had typhoid fever, and, indeed, it has even been found in cases who have apparently never had the disease. Hunner records a case of acute suppurative cholecystitis from which the typhoid bacillus was isolated, eighteen years after an attack of typhoid fever.

Given a gall-bladder sufficiently distended and the presence of pathogenic micro-organisms cholecystitis will result. The form of the infection will depend upon the particular germ that happens to be circulating in the blood of the individual at the time. In some cases there are two or more varieties of germs found in the contents of the gall-bladder. In such cases we do not know whether the original infection was a mixed one or whether one variety only was responsible for the mischief, and the others were secondary and accidental.

The type of the inflammation of the gall-bladder, whether there be involvement of the mucous membrane only or whether the entire thickness of the wall be affected, doubtless depends both upon the kind of the infection and the condition of the circulation, and hence the vitality of the organ.

The symptoms of a typical acute cholecystitis are those of a localized peritonitis in the right upper zone of the abdomen. The cases that are not typical, however,—and these are numerous,—may be those of an acute appendicitis, of an acute intestinal obstruction, of a local peritonitis from a perforated gastric ulcer, of volvulus, and of intussusception. Of the rare conditions which it may simulate may be mentioned malignant abdominal tumors with the occurrence of sudden acute symptoms, acute inflammation of the pancreas, acute surgical conditions of the kidney, the twisting of the pedicle of an abdominal tumor, or of the spleen. Of all these conditions acute inflammation of the gall-bladder will most frequently have to be differentiated from appendicitis. The reason for the similarity of the symptoms in the two conditions is readily explained by recalling the anatomical relations of the two structures

involved. Both are in direct communication with the intestinal canal, which is subjected to more frequent disturbances, perhaps, than we are aware of chiefly as the result of overeating, or the ingestion of unwholesome or even poisonous articles of food. In the case of the gall-bladder, however, the opportunity for an infection from the alimentary tract would appear to be much more remote than in the case of the appendix. The tract leading to the former is not only much longer, but in the healthy condition, the more or less constant flow of bile would seem to tend to prevent an ascending infection. Both have a peritoneal covering, and it is this fact that frequently renders the distinction between the two diseases so difficult or impossible. In both cases the pain in the beginning of the attack is apt to be generalized. Irritation of one of the branches of a nerve frequently gives rise to pain throughout its whole distribution. In the case of the appendix the nerve-supply is derived from the superior mesenteric branch of the sympathetic nerve, and in the case of the gall-bladder from the celiac plexus of the sympathetic. As the whole alimentary tract is supplied by branches from the solar plexus it will be readily understood why the pain is generalized. The pain may even be referred to a portion of the abdominal cavity entirely remote from the seat of the trouble for the same reason. There are many illustrations of this vagary of the nerves. We are all familiar with the pain in the neighborhood of the knee from inflammation in the hip-joint, and of the reflex pain from a decayed tooth, which may be felt only in teeth that are perfectly sound. In many cases of inflammation, both of the appendix and of the gall-bladder, the pain becomes localized in the region of the affected organ. This is particularly true when the inflammation becomes circumscribed to the organ itself, involving only the surrounding structures that are in actual contact and in which there is a plastic exudation which prevents the further spread of the disease. Where there is no such effort to circumscribe the infection, the pain remains generalized. The initial symptom in acute cholecystitis may be a chill. There is usually a rapid elevation of temperature which may reach 104° or 105° F., but this is exceptional, 101° to 103° being much more constantly observed. Nausea and vomiting are likewise constantly observed. These may be caused by the acute toxemia, or it may be that they are reflex and due to irritation of the pneumogastric nerve, which anastomoses freely with the sympathetic, or finally they may result from local or general paresis or paralysis of the intestine due to pressure or inflammation. It is probable that the first two of these causes are usually responsible. There is an acceleration of the pulse corresponding usually with the degree of fever, considerable prostration, severe abdominal pain with marked tenderness, usually general at first for the reasons given, and in most cases, later, becoming localized. Jaundice is rarely, if ever, present, unless some form of

obstruction of the common duct has preceded, or is associated with, the infection of the gall-bladder. There is considerable variation in all of the prominent symptoms. The tenderness may be moderate or extreme. The pulse and temperature vary widely in different cases. The persistent or transitory vomiting, perhaps, depends more or less upon the nature of the infection as well as upon the dose of the poison. The bowels may remain unaffected, or there may be either complete or local arrest of peristalsis. This is the class of cases that are apt to lead to the diagnosis of acute intestinal obstruction. The right rectus muscle is constantly rigid as in the case of appendicitis, and for the same reason. It is contracted by reflex irritation for the purpose of giving rest so far as possible to the inflamed part. In many cases there is sooner or later distention of the abdomen which sometimes becomes extreme. If the rigidity and distention of the abdomen be not too great, the distended gall-bladder may be felt. This is especially true of thin subjects. If the infection remains localized to the gall-bladder the symptoms will gradually settle themselves in this area, or there may be at any time a sudden spread of the infection, or rupture of the gall-bladder with an acute general peritonitis, the symptoms of which are only too familiar.

The diagnosis of acute cholecystitis, as will be inferred from what has been said, may be easy in some cases and difficult or impossible in others. When there has been a previous history of gall-stones, with characteristic pain and with jaundice, either with or without previous inflammatory attacks, this fact may lead to a correct diagnosis. With our present knowledge we should be on the lookout for inflammation of the gall-bladder if acute abdominal symptoms occur in a patient who has a history of gall-stones in the course of typhoid fever, pneumonia, and other infectious diseases, or as a sequel of them. The presence of a palpable tumor beneath the right costal border which is tender to the touch would strongly point to inflammation of the gall-bladder. Abdominal pain, fever, and rapid pulse, with or without nausea and vomiting, are valuable signs only when associated with other symptoms pointing to the gall-bladder region, inasmuch as the same conditions are common in appendicitis and other peritoneal inflammations, as well as in many forms of obstruction. In some instances the gall-bladder is abnormally low, and, on the other hand, in many cases of appendicitis in which the process points directly upward towards the liver, the local symptoms may be much higher than usual. In either of these cases the examination would probably be misleading. We now know that inflammation of the appendix is the most common intra-abdominal condition which the surgeon is called upon to treat. In this statement exception is made, of course, of the inflammatory conditions of the pelvis in women, which are extremely common, and which not infrequently sim-

ulate appendicitis. We should, therefore, in the absence of definite symptoms, pointing in one direction or the other, examine most carefully into the history and present symptoms in an endeavor to develop facts which would either point to or exclude appendicitis. The next most common condition which gives rise to the same symptoms is that under discussion. Here, again, a careful inquiry into the previous history, especially the presence or absence of symptoms referable to the gall-bladder, a critical analysis of the onset, and of the course of the symptoms, together with the physical examination, will frequently guide to a positive conclusion. The same remark applies to the other conditions which have been mentioned,—namely, a hydro- or pyonephrosis, a subphrenic abscess, or acute inflammation of the pancreas, acute intestinal obstructions from band or other cause, and localized peritonitis from whatever source. Little or no doubt will exist in the cases which, in addition to a history more or less typical, will also present tumor and tenderness in the gall-bladder area. Doubt must, however, remain when the pain and tenderness are referred to some other region and when there is no tumor palpable. We will, perhaps, learn in the future better how to distinguish these cases, but at present our most experienced operators have been deceived. It has happened repeatedly that an operation undertaken for appendicitis has revealed an inflamed gall-bladder. In a number of instances the operation intended to relieve intestinal obstruction has likewise shown a cholecystitis. I have known the inflamed gall-bladder to be mistaken first for appendicitis and afterwards for a pyonephrosis and to be opened from the loin, the mistake only being discovered after the operation, when bile flowed from the wound. The importance of arriving at a correct decision is, of course, very great, inasmuch as it determines the site at which the surgeon shall make his incision. In the cases in which absolutely no clue is to be had, it will be necessary to open the abdomen in the middle line. This is rather a serious matter, inasmuch as it not infrequently requires considerable manipulation in order to reach a diagnosis, and then often a second incision over the site of the lesion. In those cases in which the symptoms point either to appendicitis or cholecystitis, it is entirely proper to make the incision, as advised by Richardson, about midway between that appropriate for the respective conditions. This will permit of the introduction of the fingers for diagnosis when the incision may be prolonged upward or downward, according to whether the gall-bladder or the appendix be involved.

The prognosis of acute cholecystitis without operation is most unfavorable, very much more so than in the case of appendicitis. If operated upon before general infection of the abdominal cavity has occurred, most cases will recover. In rare instances the disease will fol-

low a course like that of the fulminant appendicitis. Either from rapid necrosis of the gall-bladder wall, with rupture and extravasation of the contents, or from the entire absence of any attempt at the formation of protecting adhesions and barriers of lymph, a general septic peritonitis supervenes so rapidly after the first symptoms that no opportunity is afforded for an operation.

The treatment of acute cholecystitis is purely operative. No medicine whatever will relieve the distention which so commonly exists or stay the violence and spread of the infective inflammation. The gall-bladder should be exposed by a suitable incision and drainage established. A variety of incisions have been recommended. Some operators prefer that parallel with and just below the border of the right costal cartilages, others a vertical incision external to the rectus, and a second incision from the lower extremity of the first outward. The simple vertical incision, over the tumor, if one be present, if not, external to the right rectus muscle from the margin of the ribs, three or four inches downward as may be required is usually preferred. Another guide is to make the incision from the tip of the tenth rib, vertically downward for the required distance. Usually the distended gall-bladder presents itself in the wound at once. Occasionally an indefinite mass is found in which it is difficult to recognize any structure. Careful separation of the adhesions will reveal the gall-bladder, however. The next step should be to surround the gall-bladder area with gauze in order to protect the cavity of the peritoneum. The fluid in the gall-bladder is then to be aspirated, after which it may be opened freely. During all these manipulations any of the fluid that escapes should be quickly removed by sponging, for while healthy bile is sterile and well tolerated by the peritoneum, the fluid contained in acute cholecystitis is frequently virulently infectious.

A careful search should then be made for the presence of gall-stones, and if any be found, of course they are to be removed. The incision in the gall-bladder is then to be sutured to the peritoneal incision, and a rubber tube introduced for drainage. A gauze drain is to be passed beneath the gall-bladder and the abdominal incision closed.

In some cases the gall-bladder wall will be so friable that the sutures will tear out immediately. In such cases, we have to depend upon gauze packing so placed about the gall-bladder as to isolate it from the general peritoneal cavity. It is almost incredible how successfully this may be done by careful disposition of the gauze. The character of the fluid evacuated in these cases may be clear, or turbid and purulent. Bile may be present in larger or smaller proportion, but mixed with pus. In some cases the fluid found in the gall-bladder at the time of operation will be nearly or quite colorless, but in one or two days normal bile

will begin to flow from the wound. It seems that the distention has prevented any bile from reaching the gall-bladder. The drainage-tube will be retained in the gall-bladder for a variable time, but certainly until the color of the stools renders it certain that bile is being discharged into the intestine. A permanent biliary fistula is probable only in cases in which the common duct is occluded from a calculus or pressure.

SUN FEVER,—A HITHERTO UNREPORTED TROPICAL MALADY.

By William Hemphill Bell, M.D., U.S.N.,

U. S. S. VIXEN, BLUEFIELDS, NICARAGUA.

With the rapid extension of Anglo-Saxon interests in tropical countries and their civil and military occupation by peoples of northern latitudes, the various tropical diseases, to which the light-skinned races seem especially susceptible, are demanding our closer attention; and a thorough understanding of their causes, features, and treatment, and, above all, their prevention, is becoming more and more imperative. Many of us are familiar with the more common of these diseases,—those primarily tropical,—and yet, on favorable occasions and at certain seasons capable of wide distribution, such as yellow fever, cholera, malaria, dysentery, leprosy, and heat-stroke; but there are numerous others little known to the ordinary northern practitioner, and still others, which even the student of tropical diseases has as yet failed to describe, separate, and classify scientifically. There can be little doubt that in the tropics there are a number of fevers specifically distinct from any of those already perfectly differentiated, and also from the better-known fevers of temperate climates. "Such fevers are constantly met with and are a perpetual puzzle to the conscientious diagnostician," says Manson. No doubt many have attempted to classify these on a clinical basis, but until their etiology has been studied and established, particularly in reference to their relation to the malarial organism, their categorical position among diseases must be left undetermined.

Guiteras, Crombie, Manson, and others have done much in this direction, but the field is still large and susceptible of valuable development. It certainly merits study, and it is a pity that the surgeons of the English army have not taken greater advantage of their opportunities in India, Egypt, and elsewhere, have not made greater progress in this matter, and contributed more to this very important department

of tropical medicine. They have had better opportunities for studying this subject than any other body of medical men, and yet we find little information anent it emanating from them. According to Manson, "there is a large, ill-defined, and difficult-to-define class of heat-stroke cases which belong neither to the category of heat-exhaustion nor to the very definite and probably specific disease described under the name siriasis."

It is in view of this assertion that I presume to set down, I trust with benefit, what I consider a new and distinct clinical entity, and what the natives and doctors of Central America call sun fever.

The Medical Corps of the United States navy are firm believers in the "ounce of prevention," and work on that principle carefully, so that the number of cases of any one disease coming under our individual observation is necessarily limited. We are primarily hygienists, as all physicians should be, and many are, but happily have the advantage in this respect of being ideally situated to carry out our precautionary measures promptly and efficiently. The surgeon on every ship, with the necessary and, I must say, invariably willing assistance of the commanding officer, is the health influence of practically a large family, and the members of it, no matter how numerous, are absolutely under control, are subject and bound to observe any reasonable health regulation which he may from time to time deem advisable to suggest or recommend. His medical work is, relatively speaking, limited to the ship, and he is bound to guard against the invasion of his little community by the diseases prevalent in the vicinity, and to speedily take steps to stamp out any morbid condition which may at any time gain entrance.

I have had but five cases of sun fever under my personal observation from which to draw conclusions, and while I realize the inconclusiveness of observations in so limited a number of cases, it is desirable, I believe, to set down the characteristics of the disease, as I have observed them, without delay. I have sought in vain to supplement my experience by some previous recitation of signs and symptoms, which would conform to those of sun fever, and now I present it to you, in the hope that it will prove to be of practical value in the future, or at least may excite a more general interest in tropical diseases.

The possibilities of this apparently sun-induced disease would seem to be limited to the torrid zone, where the sun's rays are most direct and penetrating, for the morbid structural phenomena are confined to the tissues exposed to the sun's influence. Not that I am inclined to give credence to the caloric theory of pathogenesis,—far from it,—otherwise, why not similar effects from the exposure to the intense heat of the fire room; but there seems to be some special element in the

solar spectrum, such as suggested by the phenomena of the Röntgen ray, capable of injuriously affecting the tissues.

The temperature of the sun is, on the average, about thirty-five to forty degrees hotter than the atmosphere here, and it is natural to assume that, with the increased verticality of the sun's rays, there is a corresponding increase of power in what we will call, for convenience, its chemical rays.

It is interesting to note, in this connection, that all my patients were of the very blond type, and no doubt all people of light complexion, who have not become gradually habituated to sun exposure, are susceptible to this "sun traumatis" or fever.

The pathology of the disease, as far as I am able to judge from a study of the limited number of cases under my observation, is a local, low-grade, peripheral neuritis, with resulting vasomotor paralysis and edema of all the subtissues in the inflamed area, whether mucous or cutaneous. More than this I will not venture to say, but I believe there are no other structural changes, except, perhaps, what could easily be explained by the mild general fever.

Sun fever begins with a brief prodromal period, marked by nothing more characteristic than a pronounced feeling of malaise, fulness in the head, and a slight initial pyrexia. These symptoms soon become aggravated, and the fastigium of the fever begins accompanied by supraorbital headache, and an inflammatory swelling of the features of the face, particularly the upper part about the eyes. The conjunctivæ become injected and edomatous, the eyeballs and sockets sore, and vision impaired. There is also more or less photophobia.

The above use of the word "inflammatory" deserves some explanation here, though I use it advisedly. The local manifestation is not the sun erythema, which we all know so well, and in which there is that superficial sensitiveness and tendency to blister; nor is it a form of erysipelas, though in appearance it assimilates that disease very closely. It is a condition involving the entire thickness of the integument, and extends through or beyond the areolar tissue of the affected surface, and is characterized by a uniformity of the swelling, which blends off into the surrounding tissues instead of being definitely outlined, and by pain and pitting upon deep pressure. The rest of the body is dry and comparatively cool.

The fever reaches its height between 102° and 103° F. about the second day, at which time the patient complains of soreness of the back and legs, with dull aching and diffuse tenderness of the abdomen. The stomach, however, seems to be the focal point of this last symptom, and all the digestive functions are in an atonic condition. The tongue is large and flabby and lightly coated, anorexia is present to a pro-

nounced extent,—almost absolute,—so that the patient has to be urged and tempted to take nourishment, and there is considerable tympanites with gaseous eructations and flatulence and tendency to constipation. In short, added to the local signs and symptoms, all those of a mild, irregular fever and gastro-intestinal indigestion are present. Insomnia and restlessness are present or not, depending upon the severity of the local condition, and these seem to constitute the nervous symptoms *per se,* though I consider sun fever essentially an *affliction* of the nervous system, and the constitutional disturbances to be a reflex result of the peripheral nerve-irritation. The urine, aside from being "feverish," is negative, and further physical examination is uninteresting. The state of the blood is not known, as I had not the means for making an examination.

At first there is doubt as between influenza and enteric fever, but the diagnosis is early cleared up by the prompt development of the local condition above mentioned, which is eminently pathognomonic.

None of my cases terminated fatally, nor do I consider the disease dangerous, or even capable of annoying sequelæ. *Per contra,* and as opposed to thermic fever, I believe it leaves a diminished susceptibility, —that where an attack of thermic fever renders one more vulnerable, sun fever leaves one temporarily immune.

The treatment should be conducted on the general principles of all the non-specific fevers,—symptomatically, with rest in bed in a darkened room, light (not necessarily liquid) diet, bathing, etc. A sedative lotion, such as lead-water and laudanum solution, should be applied locally to the swollen surface, and the internal medication should consist in the careful administration of antipyretics, stomachics, and nerve-sedatives. Later on in the disease it is well also to give some vasomotor stimulant, such as atropia, to revive the tone of the vessels, and through convalescence some form of tonic treatment is distinctly indicated. Considering the short duration (six or seven days on the average) of the acute stage of the affection it is surprisingly exhausting, and it will be found best, I believe, to continue your tonic treatment for several weeks.

There were slight, unimportant variations in my different cases, as one would expect. In one, particularly, a victim of chronic naso-pharyngitis, the disease seemed to spend most of its energy on these mucous membranes, contiguous tissues, more susceptible to an acute exacerbation of an already existent inflammation than the skin to a primary inflammation, though the face did participate in the disease as in the other cases.

THE AMERICAN PHYSICIAN AS A PRESCRIBER OF MEDICINE.[1]

By Emil King, M.D.,

FULDA, MINN.

Pharmaceutical writers often criticise the physician in regard to the frequent prescribing of so-called proprietary and trade-marked medicinal preparations. Many thousands of prescriptions from the leading physicians of the country have been examined, and it is found that about 70 per cent. of the entire number contain preparations not recognized as standard, and at least 30 per cent. consist entirely of unofficial drugs. What is true of the leading men of our profession is certainly true of the rank and file.

On looking over the pages of our medical journals we find them filled with the advertisements of proprietary and trade-marked preparations, and we frequently receive sample copies of the cheap and trashy medical literature, published for no other purpose than to exploit this nostrum business. Yes, daily, our office waste-basket is fed with circulars and reprints, all intended to inform us of the best and easiest cure for the many diseases flesh is heir to. Very many of these articles, exploiting this nostrum business, are no doubt paid advertisements, written to order, for supposed notoriety of the writer or for a fresh lot of samples. Worse still, because not so readily detected, is the fact that many of the better medical journals will admit to their scientific pages articles which are nothing less than advertisements.

If the physician, then, is guilty of prescribing these unethical preparations, it follows that the cynical old saying, "Physicians are persons who pour drugs, of which they know nothing, into the bodies of patients of whom they know less," applies to us with much truth.

Why are we guilty of fostering this nostrum business? First and foremost of all the causes is the fact that the American physician is very imperfectly educated in materia medica, therapeutics, and pharmacy. In the curriculum of nearly all of our medical colleges two of these branches—materia medica and pharmacy—hold a very minor position in the course of study. On entering college the green student is at once required to listen to lectures on the last-named studies. He must sit through the dreary hours before he is able to intelligently follow the lecturer. The only time, during his entire course of study,

[1] Read at a meeting of the Southwestern Minnesota Medical Society, held at Adrian, July 20, 1899.

when he can see a drug and its preparation, if there is any, is when the teacher brings it to the light of day for, perhaps, one brief hour. The student may possibly handle a very few drugs in the pharmacy laboratory course, but does he know by name, when he graduates and begins life's work, one-fourth of the official preparations of the Pharmacopeia, does he know by sight one-tenth of their number? Does he know that the Pharmacopeia and the National Formulary contain formulas which practically duplicate all of the better proprietaries?

In my opinion, the medical student should never be required to study these branches until the groundwork of his profession is completed. Do we not all remember with what pleasure we followed the lectures of our last year, when the chaotic mass of knowledge stowed in our minds began to assume an orderly and definite form? This is the proper time to teach a knowledge of drugs, and how to use them.

Every student should have free access to specimens of all the official drugs and their preparations, and, what is as important, he must handle them. A very thorough preparation in materia medica, therapeutics, and pharmacy, intimately related, so far as they concern the physician, is nearly as important as all of his other medical knowledge combined; the latter being necessary to enable him to make the diagnosis, and the former to enable him to give quick relief and cure, if possible. Is there any other profession in this great country which sends its graduates into the world so illy prepared in so essential a branch as ours?

Does the newly fledged physician know how best to combine the remedies he may wish to prescribe when he first takes up his work? If not, how does he get this knowledge? Does he turn to the United States Dispensatory or the Pharmacopeia? No, for he does not have those books. However, he does get free medical journals and reprints by the score, and the polite agent of the manufacturer calls on him and leaves a supply of samples. The journals and reprints are read, the samples are tried on his patients, with perhaps good results, for nature, you know, is ready to assist, and the result is that another victim is secured by the manufacturer. Imperfect education, then, is the most potent cause of this evil; for through no other cause would educated men give their patients drugs of whose constituent parts they actually know nothing. They are even ready to believe the absurd claims made by these manufacturers. These latter people often claim to have discovered how to combine drugs, by chemists the world over known to be incompatible, in one solution, and which remedy has therefore acquired therapeutic power possessed only by it. Or, possibly, this wily business man has succeeded in removing the "irritant" properties of a drug, or has removed the "depressing" quality, and has rendered its

use safe and harmless. Only lately I saw where an advertiser claimed great potency, because his preparation had been subjected to enormous pressure, and another's preparation had been subjected to the magic electric current. This is the rot they feed to us now since the stories of Indian doctors' secrets have lost their effect.

These men always have an excuse ready if, on analysis, their remedy is found to be something which our medical grandfathers used, or the ingredients claimed for it are not found in it.

Another cause of this evil may be expressed in the words elegant pharmacy. We cannot deny that the people of to-day demand that the remedies prescribed for them shall, so far as possible, be good to taste and elegant in appearance. The day of the old nauseating shotgun mixture is gone. The strongest claim of the nostrum manufacturer, so far as it appeals to the physician, for his preparation is its fine appearance and pleasant taste. The physician who is unable to prescribe ethical remedies in this form lacks knowledge and skill.

A third factor entering into this question of cause is laziness, or I might say a disinclination to take pains with "the little things" of our work. This is a national fault, but it is one the physician should strive to overcome. Take sufficient time to write your prescription legibly and intelligently.

There are other factors contributing to this evil practice, some of them inherent in the race. We certainly would not prescribe "Foreskin's gonococcus destroyer" were we not convinced, by a stranger—the manufacturer—that by its use the patient will get a superior unadulterated medicine.

You are further warned not to trust your old friend the druggist, for he is always ready to take the very first chance to substitute something worthless or positively harmful. This simile is not overdrawn, for we meet its like every day.

Why should we never prescribe these preparations? Because their formulas are secret or semisecret, and we cannot conscientiously give our patient a drug or preparation of which we know nothing. Because, by using them we become the willing and unpaid agent of the manufacturer. Because we are laying the corner-stone of the patent-medicine humbug by leading the patient to self-medication. Because we are taking money from the pockets of our patients and handing it to the manufacturer, for these preparations must be sold at a higher price than the ethical preparation. And, lastly, because we are destroying ourselves as scientific physicians, and we cause the patient to lose faith and confidence in the medical profession.

Physicians should ever remember that all effective remedies have a limited range of action and usefulness, and whenever we become too

negligent to prescribe well-known and tried remedies for definite pathological conditions, we deceive the patient and defraud ourselves. Many a patient learns to habitually use a preparation through the prescription of his physician. This evil we are responsible for, and too often we read or hear of cases of fatal poisoning through the use of some such preparation,—who is to blame?

I take for granted that all of the proprietary preparations persistently advertised are extensively prescribed. Can any one figure out, then, the enormous quantities of such medicines fed to our sick, Let us examine a few of them, for instance the preparations of cod-liver oil without the oil. All therapeutists of note are agreed that this oil cannot be split up into its constituent parts without destruction of therapeutic power, and yet mixtures of wine, aromatics, and extractives from the oil are extensively prescribed. Could we not obtain equally good results by giving the wine and aromatics alone instead of deluding ourselves into the belief that our patient is taking cod-liver oil? Consider, also, the host of proprietaries containing acetanilid as the chief medicinal agent. We are fairly deluged with advertising and samples relating to them. For all the claim is made that they are practically harmless; that they will not cause cardiac depression. Do we not with certainty know that acetanilid will in some cases cause poisoning? Would it not be preferable, then, to write out a prescription in which you know the actual quantity of this powerful drug you are giving? Another class of these preparations so persistently held before us are the alteratives and uterine sedatives. This entire class is generally composed of drugs of which but little is known. Their use is purely empirical, as physiologists and chemists have not as yet found any active alkaloids in them. We prescribe them, then, because some enterprising manufacturer has succeeded in making us believe, generally with the aid of the name of some great physician, that occult virtues reside in a preparation containing, for instance, viburnum prunifolium and opulus, scutellaria lateriflora, sanguinaria canadensis, and cinnamomum zeylanicum (the composition of a popular uterine sedative). Could we not prescribe more scientifically for our patient, could we not combine remedies of known action and power, and give a greater chance for relief and cure? If placebos must be given, then let it be something known to be harmless.

If it is unethical and bad business policy to prescribe these preparations, what then should our prescription contain? I must say, unreservedly, only such ingredients as are of known composition, and preferably such as are recognized by the Pharmacopeia and National Formulary, for we should always know the exact amount of all ingredients given. As scientific physicians we should employ the same searching

care in treatment as in making the diagnosis. Our success in practice does not depend nearly so much on being a brilliant diagnostician as on being able to cure "quickly, safely, and pleasantly." We have all known brother physicians whose skill as diagnosticians was of a high order, and yet they were not successful men as we understand the term. Why not? Perhaps some fault in habits or manner, but usually an imperfect knowledge of the art of giving medicine; they lack one essential qualification of the successful physician. To have, or to acquire, this art we must have a thorough knowledge of the drugs, physical, chemical, and therapeutical. We should "know" the Pharmacopeia, for often a single drug has a number of preparations, each particularly suitable in a given case. The physician who uses but one or two of the preparations of iron in his practice is not as successful in its use as the one who knows the therapeutic application of each official variety. And what is true of iron is true of all of the other drugs. Another duty of the prescriber is, to be well versed in incompatibilities. It is sad to think that we are so often guilty of this charge. As highly educated men in our specialty, it is our duty to avoid this error, for it not only produces mixtures unsightly to appearance, but it may defeat its therapeutic purpose or cause greater illness, and even death. We must further know how to write our prescription, so it may be put up in an elegant form and, if possible, of pleasant taste.

I know that my proposition, to prescribe only official preparations or those of known composition, will not meet the approval of the enthusiasts of our profession who are eager to adopt the latest fad or the newest idea. It is far better to stick to that which is tried and true, in the use of which we have become proficient, on whose action we can safely depend, and where results can be confidently expected. Leave experimentation to those who have charge of hospitals and are trained to observe and deduct correctly. The general practitioner, of whom I am speaking, cannot afford to experiment and wait for results; it is his duty not to do so, for his work in this line can seldom be of much benefit to medical science in general, for he does not see cases of one disease in large enough numbers to make his deductions positive. Far better to be conservative, and wait until a new remedy has been thoroughly tested, and if it possess qualities superior to the other remedies of the same class, then it will be time enough to begin its use. We should be careful to observe the source of many of these preparations. If its parents belong to the fakir class, we may know that the offspring is tainted. Germany and France have sent us many of these fakes, for they find this country their most fruitful field.

From the remarks so far made I seem to make the claim that the physician should be the enemy of the manufacturing pharmacist. In

part this is true. We should be the enemy of every manufacturer who prepares, lauds, or advertises any preparation whose formula is secret, who lays claim to a formula known to be scientifically impossible, or who sends out preparations not true to label. We should discourage the use of trade-marked remedies even though the formula is known, if we can do so, for we should dislike the idea of assisting any man or company in robbing our patients. How quickly we resent if a physician, discovering something of value, patents his idea for his own pecuniary benefit. We say it borders on quackery. The same thing is true of him who trade-marks a drug and compels the public to buy of him at a large price. Medical science is cosmopolitan, world-wide, and we should have the unrestricted use of every discovery or advance in it; therefore we must discourage every restriction placed on such freedom by imperfect laws.

Manufacturers of secret and trade-marked remedies are ever ready to hide their real aim,—that of monopoly,—under various and familiar claims, for instance that of substitution. If to use an article similar to one of this class, but of whose constituent parts you are certain, is a crime, then, I hope, every physician in the land is guilty of this crime every day of his life. We are often informed that substitutes are harmful, if not actually dangerous; possibly they are if the druggist is the substitutor, but this I believe is a rare occurrence. After reading all of this clamor we are apt to believe some of it, and to forget that our druggist is striving faithfully to put up our prescriptions just as we order them. We forget that he is striving to build up his business by strict integrity towards the physician and his customers; that he tries just as hard to buy pure and active drugs as the manufacturer, and that ten chances to one he uses the same scientific methods in making his preparations.

We as physicians should encourage those manufacturers whose aim it is to make strictly ethical preparations, where the ingredients are known, and the finished product is true to label. Such manufacturers have done much to add to our knowledge of the quality and therapeutic action of drugs, and they are striving to-day more than ever before, by assaying and standardizing crude materials and finished products.

What must we do to regain a lost position and our own self-respect? We must turn away from these false gods by realizing the harm we do to ourselves and to our patients. We must spend more time in learning how to properly prescribe ethical medicines than in keeping up with the latest advance in bacteriology or surgical technique. We must read the United States Pharmacopeia and the National Formulary. The latter work is issued by the American Phar-

maceutical Association, and contains about 435 formulas for preparations intended to cure this very evil. These preparations are ethical and meet fully all of our demands, for they pertain to elegant pharmacy, and can be prepared in any of the better pharmacies of the land. We should further refuse to subscribe to the journals found to be persistent offenders in their advertising and scientific pages, and let us not forget to urge, through our societies, that a change in our present method of education is very necessary.

When we shall have been cured of this pernicious practice, and cease to be the "self-constituted agent" of the manufacturer, we will stand before the world for what we claim to be, scientific physicians.

CLINICAL DEPARTMENT.

HOSPITAL OF UNIVERSITY OF PENNSYLVANIA.

[Service of J. WILLIAM WHITE, M.D.]

PYLOROPLASTY FOR CICATRICIAL CONTRACTION: RECOVERY.

THE case here described was referred to Dr. White by Dr. M. Howard Fussell, from whom the following history was obtained:

CASE.—J. M., aged 45, family history good; never had any acute illness until the beginning of the present trouble. He, however, had suffered from pain in his epigastrium, eructations, vomiting of food, flatulency, and constipation, at intervals, for a number of years. He is of neurotic temperament.

In the spring of 1897 he swallowed about an ounce of hydrochloric acid, which had been for some time standing on zinc. Immediately after swallowing the acid he was seized with severe epigastric pain, with vomiting, and with partial collapse, followed by symptoms of acute gastritis, including a rather severe attack of vomiting of blood.

The acute symptoms gradually disappeared, but he continued to lose flesh, and developed severe attacks of vomiting; the attacks of vomiting would come on usually in the middle of the night, and the vomiting practically consisted of the food he had taken in the previous twenty-four hours, which food, however, was fairly well digested.

He was first seen by Dr. Fussell in the early part of September, 1897, when his condition was as follows:

Extremely nervous, marked emaciation; heart, lungs, and kidneys

normal; examinations of the abdomen showed great distention of the stomach, especially at the cardiac end.

On inflation, the viscus was seen to reach an inch and a half below the left of the umbilicus, and a large tympanitic mass was found lying considerably to the left of the median line. This was evidently the dilated stomach.

Examination of the stomach contents showed them to be in a fair state of digestion.

A test meal was given, and the stomach contents were found to be entirely free from hydrochloric acid, with the absence of lactic acid.

He was put upon carefully regulated diet, daily lavage was carried out, and large doses of bismuth were administered, and strychnine was given as a tonic. He improved very decidedly until Christmas of 1897, when he began to fail, and was admitted to the hospital in May, 1898, in much the same condition as he was in September, 1897; diagnosis having been made of traumatic stenosis of the pyloric orifice.

As the patient was evidently doomed to early death from starvation, immediate surgical intervention seemed imperative. For the relief of such conditions four operations are to be considered,—dilatation (Loretta's operation), pyloroplasty, gastro-enterostomy, and pylorectomy. The latter may be dismissed at once as being unnecessarily dangerous in cases of non-malignant stricture. Gastro-enterostomy is attended with disadvantages which are not common to pyloroplasty, and while these must often be accepted, pyloroplasty is the operation of choice in all suitable cases. Loretta's operation is easily performed, but the statistics show that there have been a number of relapses after full dilatation, for which reason it is, at the present time, not in favor with surgeons. Pyloroplasty was therefore decided upon by Dr. White, who did the operation in June, 1898.

The pylorus, which was exposed by the usual incision, was found to be much thickened. The anterior wall was incised in a longitudinal direction, opening the canal. The suturing of the incision in a transverse direction was made particularly difficult by the dense induration of the stomach wall and the very great friability of the tissue, on account of which the sutures constantly tore out. Three rows of sutures were introduced, the first of catgut, including the mucous membrane only; the second layer was of silk and included the entire thickness of the wound down to the mucous membrane; and, finally, a row of silk Lembert sutures was applied to make the apposition perfect. The only operative difficulty was the one already mentioned,—namely, the friability of the pyloric tissues.

The patient bore the operation very well, and made a rapid and uninterrupted convalescence. At no time was his condition such as to

cause the slightest anxiety. He left the hospital at the end of twenty-one days.

Mr. M. reported recently, at which time he stated that he had not vomited since leaving the hospital; that he was eating heartily of a general diet, and that he felt absolutely well in every particular. He had gained sixty-five pounds in weight, and was apparently as well as he had ever been in his life.

ALUMNI NOTES.

The Opening of the One Hundred and Thirty-fourth Annual Session of the Medical Department of the University of Pennsylvania.

The exercises attending the opening of the One Hundred and Thirty-fourth Annual Session of the Medical Department of the University of Pennsylvania were held in the chapel, on Monday, October 2, 1899. Provost Harrison addressed the following remarks to the students:

Gentlemen.—It has been usual during these recent years to address the students in medicine and its allied subjects upon the opening of a new academic year, and I do so at this time, as in the few years since I have been in the service of the University, with interest and pleasure.

Before proceeding, however, to the definite matter of my remarks, permit me to state the major professional changes which have been made in the medical teaching body. First, Dr. Tyson, hitherto professor of Clinical Medicine, has been appointed professor of the Theory and the Practice of Medicine.

The chair of Clinical Medicine, recently held by Dr. Tyson, will, on account of the growing importance on the subject, be hereafter held by two men instead of one, and these two professors of Clinical Medicine are now, as perhaps you will have known, Dr. Musser and Dr. Stengel. As this is the first announcement of the presence of old friends in advanced positions, I am sure that you will join with me in according to them a welcome of respect and confidence.

The professorship of Pathology, hitherto under the care of Dr. Guiteras, has been filled—I am sure in the most complete sense of that word—by Dr. Simon Flexner.

There remains, then, but one vacant chair, that of Gynecology,—which Dr. Penrose was forced to vacate on account of his health. I feel quite sure that this vacancy will soon be closed.

In the few words which I shall have to say, the subject to which I shall seek to draw your attention is the important part which you are to perform in the economy of nature, under the guidance of a Divine Power. Emerson stated the question when he spoke of the "sublime and friendly destiny by which the human race is guided," and of the unceasing effort throughout nature for something better than the existing conditions. He referred to the population of the world as a "conditional population," not the best that may live, but the best that can live in the existing state of knowledge. To use his own words,—"The best that could yet live; there shall be a better, please God!" The great end, then, to which you are to direct all your powers is the bringing about of better life conditions.

Perhaps one of the amazing things in the world is the limited interest in the physical life, the present basis of the intellectual and spiritual which is taken by men and women themselves, by all of us who are most vitally concerned in it. Among Western nations even there is, perhaps, more of the feeling of fatalism in questions of applied medical science than in any other great question. Every one knows that in the East the "Will of God," in matters of life and death, is accepted as final, without any effort at human intervention. Recent travellers in Asia Minor and a recent writer upon Armenia speak of cities of thirty or forty thousand population where there is no effort to care for life. Families of ten or twelve children are with practical regularity reduced to three or four, and the result accepted with entire complacency. It has been, of course, better in the West, but I still think it a question upon which there has been the least intelligent interest. I feel, however, that the reason why so little public care or thought has been given to this subject is because attention has not been seriously called to it. It is a question to which the answer does not come of itself, one the details of which must be made clear to individuals; but with such patient representation I feel warranted in saying that just as every other university need is being rapidly provided, so this great want of laboratories and research endowment will also be provided. If the fruit-grower whose orchard is invaded by the "San José scale" seeks immediately scientific help to stay or prevent; if the farmer so relies upon science for the care of his herds, certainly man will see to it that "the family" will have, through the universities, safe-guarding and immunity.

Huxley said that the wealth of England—and we may say the wealth of the United States—hangs upon the thread of applied science. This we all know to be true, but it is no less true that the wealth of life and everything which concerns it hangs upon the thread of applied science exactly as does material wealth. But has not the manufacturer

given much more attention to the preciseness of his laboratory results, upon which the conduct of his business has to depend, than any one does to the scientific knowledge of the man to whose art he intrusts his wife and children and himself? And so it is quite true that this lack of interest is revealed by the almost entire absence of any endowment for research in medical science. Almost every other conceivable thing attracts the benefactions of the rich. Hospitals are endowed; governments and municipalities make vast appropriations for expositions; astronomical observatories, elevating and stimulating and useful as they are, exist everywhere; but tell me the place in all these thousands of years of the world's history, until the solitary instances which have recently occurred, where the chiefest of the sciences has attracted the attention of benefactors.

(And since writing this last sentence I am very glad to be able to add that a sister university entertains the same view of the subject of which I am speaking, for, in conferring recently an honorary degree upon Dr. Councilman, the reason for its bestowal was announced in these words: "An inspiring leader in medical research, to-day the most hopeful of all fields of scientific inquiry.")

You are fortunate in coming to a university to study the science of medicine in the richest period of its history. It is not many years since "the causes of the simplest diseases were absolute mystery." The whole category of these unknown diseases was classed, within recollection, under the head of "the gale," a class whose name appears in these recent days to have been substituted by that of "the gout." And I suppose that at this time, when the cause of a disease or the disease itself is obscure, it is now relegated to the class of "gout" diseases, exactly as seventy-five years ago it was placed in the list of "gale" diseases. But these terms are now rapidly to disappear, for medicine is becoming a science of precision.

How recent this change has been from empiricism to precision is set forth in a recent address by Dr. Minot. He says, "Listen to the dates. In 1879 Koch introduced the method of solid cultures; in 1882 he published his monograph announcing the discovery of the bacillus of tuberculosis. In 1884 came Löffler's paper on the bacillus of diphtheria. In 1891 appeared Councilman's account of the ameba of dysentery. At the International Medical Congress, in 1893, Roux described the use of antitoxin in diphtheria, and about the same time McFadyean secured recognition for the value of mallein in the diagnosis of glanders. In 1896 came Vidal's reaction for identifying the germs of typhoid fever."

What extraordinary and blessed results have followed the patient work in science of these faithful men! It had almost seemed that the knife, through the discoveries of anesthetics and antisepsis, was directed

with greater mercy by the surgeon than internal medicine by the medical practitioner. Doubtless the science of medicine is yet at its beginning, and that there still exist vast regions hitherto unexplored which must yet yield up their unknown lands to the assaults of science for the further amelioration of the life of man. So that, while you are here, the problem which you have to attack is not only how to place yourself abreast of the present state of medical knowledge, but to attain such an attitude of mind as will enable you to keep abreast of an ever-advancing science. The medical student and the practitioner of medicine must hereafter be a scientific man, with his microscope ever at his hand, and with that mental state which will not permit him to rest satisfied with himself as he may be in any year, but full of the serious knowledge that his must be a constant progress. Any other course is not only wrong; it might not only be a criminal injury; it might be murder itself.

There is no one of you but will learn that not only have you a science with which you are to acquaint yourselves, but that you have also to learn the great art of practice. I have often wondered to myself upon what chiefly this art depended. Does it depend upon knowledge and the power that comes from knowledge? Undoubtedly, to a certain degree, because no one can have that sense of the power which comes from ability to master without impressing himself upon the mind of his patient. Does it come from sympathy or pity and gentleness? Undoubtedly, for these are valuable elements of the general character,—pity as an emotion fading into pity as a motive, and gentleness, that great foundation of the building up of every gentleman,—namely, consideration for the feelings of others. But, if I were to answer the question as to which were the two great qualities which make at all possible the highest practice of the physician's art, I would certainly say, Purity of heart and life and a knowledge of your science. If the ills which have their origin in unclean habits and surroundings develop into pestilences and become known under the general title of "filth diseases," so be assured that there are immutable laws of mental hygiene and of personal purity which cannot be broken without irreparable change. "Before" and "after" are two different persons, and a great gulf fixed between them. Let me speak with you, then, if not upon the moral, upon the strict hygienic side, for science tells its own story of the destructive changes which come from disobedience to her laws, as well as of the growth of power and happiness which come from observance of them. And certainly, if there be any class of men to whom these things are well known and who have the least excuse of any set of men in the world for avoidance of them, they are the students of medicine in its several sides and the medical practitioner.

Lead, then, your vigorous lives,—outdoor, wholesome, full of fresh air; take part in everything which will keep clean and clear the channels of your mind and the activities of your physical condition. Honor yourselves, and so you will be an honor to the University, and in due time, when you shall have left this "City of Truth" to go out into the greater world, you will never regret nor forget the influences of every kind which have here surrounded you.

Appointments.

Dr. Henry W. Cattell, of the Class of '87, has been appointed pathologist to the Philadelphia Hospital, and Dr. Thomas S. Kirkbride, of the Class of '93, and Dr. William B. Jameson, of the Class of '86, assistant pathologists to the same institution.

Dr. John G. Clark, associate in gynecology at the Johns Hopkins Hospital, has been appointed professor of Gynecology in the University of Pennsylvania, to succeed Dr. Charles B. Penrose, recently resigned.

Dr. W. C. Lauderdale, of the Class of '97, has removed to Asheville, N. C., and has opened an office at 99 Chestnut Street.

Dr. Samuel Patterson Stafford, Class of '97, has been appointed physician-in-charge and ophthalmologist, otologist, laryngologist, and rhinologist to Provident Hospital, St. Louis, Mo.

Necrology.

Dr. Israel Gilbert Young died at Chestnut Hill, Pa., on September 26, 1899. Dr. Young was born at Chestnut Hill in 1840, and was graduated from the Medical Department of the University of Pennsylvania in 1862.

Cleft Palate Operations.

Wolff has performed the operation of staphylorrhaphy on sixty-six children under one year of age. Of these forty-five were cured. In fourteen the result was imperfect or the sutures gave way entirely. In seven the result was fatal.

The author repairs the harelip a few days after birth. The cleft in the palate is closed in three sittings, with intervals of from seven to eight days between. At the first sitting the right muco-periosteal flap is loosened, at the second the left, and at the third the sutures are applied and approximation attained. The author claims excellent results both as regards deglutition and phonation.—*Centralblatt für Chirurgie*, No. 4, 1899.

EDITORIAL.

THE INCREASE OF CANCER.

Numerous writers have called attention to the constant increase in the frequency of the occurrence of carcinoma. The latest study of this subject, that of Joseph Frank Payne (*Lancet,* September 16, 1899), confirms the conclusions of former writers.

Cancer and tubercle are, beyond doubt, two of the most important subjects before the profession to-day. The former occurs with alarming frequency, and is steadily on the increase; the latter carries off one-seventh of our total population. Both have so far absolutely resisted all attempts that have been made to effect a cure. It is true that, in the case of cancer, the earlier and more thorough operations of to-day have brought about a slightly larger percentage of cures, or what are termed cures, and in other cases, no doubt, the interval between the operation and the recurrence has been prolonged. In this connection, it is to be understood that a person who has had a cancer removed cannot be said to be cured until many years have passed without a return of the disease. Some improvement has also been made in the treatment of tuberculosis, chiefly in the lines of improving the patient's surroundings. If small-pox, typhus fever, and other similar diseases can be stamped out or kept under control, there is every reason to hope that these two may also yield up the mysteries that have surrounded them,—the influences that are responsible for their appearance and the means by which they may be cured or kept in check. Although the incalculable amount of work so far spent in these lines with but little result might tend to lessen the enthusiasm of future workers, there is every reason to continue to pursue the investigations and to believe that finally the reward will come.

It may be remarked, in passing, that Dr. Payne thinks the parasitic theory of cancer is decidedly less promising now than it was two years ago, although he does not deny such a possibility. His investigations have led him to the following "personal opinions" as to what is probable: "First," he believes that "there is an inherited bias or proclivity towards cancer in certain families; secondly, that the cases of supposed direct contagion are so exceedingly rare as to be probably due to coincidence; thirdly, indirect contagion cannot be proved, and in cases where

it appears probable, the real explanation may be the separate action of the same local cause on the persons affected; and, fourthly, the operation of some external cause of infection is rendered probable by certain facts of geographical and local distribution." Among other interesting observations brought out are that the rate of increase of cancer in England is more rapid in males than in females, and the probability that cancer is relatively more common in the upper classes of society than in the lower. A table showing the death-rate from cancer in England for each decade since 1851 shows an increase in the last or fourth period of 86 per cent. for all ages, and of over 100 per cent. after the fifty-fifth year of life. In Scotland the mortality rate for carcinoma has steadily risen from 404 per 1,000,000 living persons, in 1861, to 770 in 1897. It is higher in the eight large towns of Scotland than in the "insular rural districts." In Ireland the death-rate is lower than in either England or Scotland. It shows an increase, however, from 370, in 1881, to 580 in 1897. In Norway the rate, in 1877, was 320, and in 1887 it was 600. In Prussia it was 310 in 1881 and 380 in 1887. In New York City the returns show a rise from 400, in 1875, to 530 in 1885. In New Zealand, a steady increase has been noted since 1881.

The first criticism that would suggest itself in considering these figures is that the difference may be explained by more accurate diagnosis, and by greater care in registration in recent years.

In reply to the first of these, Dr. Payne very justly says that there has not been any revolutionary advance in the matter of diagnosis of carcinoma and of sarcoma, for his figures include both; and while there is doubtless greater discrimination in the matter of registration, all authorities agree that this cannot explain the very great difference in the figures. In order that this source of error might be excluded as largely as possible, the present inquiry begins with the year 1851, before which the records were less reliable than since that time.

In the report of the Registrar-General of England for 1889, Dr. Ogle published a table showing the increase of cancer in different parts of the body from 1868 to 1888, which, even if not strictly accurate, are most instructive at least. The largest increase was noted in cancer of the digestive organs, which amounted to 74 per cent. for males and 98 per cent. for females. Cancer of the tongue increased by 67 per cent. in men; cancer of the breast in women showed an increase of but 9 per cent., and of the uterine organs of 19 per cent. The general death-rate in this table had risen 50 per cent.

In Ireland, where the population is nearly stationary, the annual number of deaths from cancer, in ten years, has increased 25 per cent., and the death-rate, 31 per cent. From the breast, the figures are 22 and 27 per cent. The deaths from cancer of the tongue have in-

creased 40 per cent. in the same period. The records of St. Thomas's Hospital show that the admissions for cancer of the tongue have increased 83 per cent. in twenty years. From these and other figures it is estimated that the occurrence of cancer in this situation is increasing nearly 4 per cent. per annum.

Dr. Payne draws the following general conclusions from the facts presented: (1) Cancer is becoming increasingly frequent as a cause of death. (2) In this increase there is a marked predominance of cancer of the digestive organs. (3) Cancer of the generative organs increases less rapidly, but does not stand still.

VITAL STATISTICS OF THE UNITED STATES.

Physicians and students of mortality statistics will be interested in learning of the work now being accomplished by the Chief Statistician of Vital Statistics of the United States Census, by the authority of the Director, Hon. William R. Merriam. It is a practical effort, necessarily of limited scope, to secure the adoption of a uniform certificate for the return of deaths and looking towards the establishment of a common national system of collection of vital statistics for the purpose, primarily, of the Census tables and publications.

Correspondence has been had by the Chief Statistician, Mr. William A. King, with the officers in charge of mortality registration in the States employing such a system, and in the cities having a population of 5000 and more at the last Census which also collect and register death returns. Complete and accurate information of the different methods in vogue has been obtained, and it was found that there is much unnecessary and objectionable variation, considered from the Census point of view, in the form of official returns.

Having no power to compel co-operative action, and hampered by want of time in which to carry out the whole project, nevertheless the Census Office undertook to secure the modification or amplification of the death certificates so as to have them include the items necessary to obtain Census data.

The Director of the Census confidently expects that physicians everywhere will appreciate the desirability of the new order of things, and that they will earnestly and actively co-operate in securing prompt and accurate mortality returns of the uniform character required by Congress and sought for by statisticians. He recognizes the fact that failure on the part of physicians to give vitality to the common standard by carefully reporting the items that may be new to their certificate will be fatal to the end in view.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND A. O. J. KELLY, M.D.

Belladonna in the Bronchopneumonia of Children.

Hodghead (*Pediatrics,* September 1, 1899) reports a case in a child eighteen months old, where, on the treatment ordinarily used in pneumonia, the child gradually failed, when he determined to use the following: The child was wrapped in soft, loose clothing; water was given instead of milk; the atmosphere of the room was made moist and kept at an even temperature. One-twelfth of a grain of calomel was given every hour until the bowels were moved, and two drops of tincture of belladonna given every hour. In twelve hours a marked improvement was evident, and in twenty-four hours all the symptoms were so much improved that the belladonna was gradually decreased, and the child made a rapid recovery. Based upon this case, a series of experiments was begun, with the result that in twenty-five cases of his own, and five in practice of other physicians, there were twenty-eight recoveries. He concludes (1) that calomel should be used in small doses until a cathartic effect is secured; that the belladonna in small doses is mildly narcotic, and brings about a condition less uncomfortable to the child; that it is a heart-tonic; that it is a respiratory stimulant, and that it produces dilatation of the superficial capillaries, and relieves the congested lungs. The most important influence, however, is that it diminishes the secretion in the bronchial tubes and the pulmonary tissues. To be effective it has to be used every hour or two, until the desired effect is obtained. The drug has not been found effective in the beginning of the disease, but becomes especially applicable when the bronchial secretion is abundant.

The so-called Typhoid Pneumonia.

Smith (*Maryland Medical Journal,* September 2, 1899) says that there are in fact three separate groups to be considered:

(1) Pneumonia running a typhoid course and with out-spoken typhoid symptoms, but in which the infection of the organism is in no way due to the typhoid bacillus.

(2) The combination of a genuine typhoid fever with a genuine lobar pneumonia, induced by the pneumococcus.

(3) Cases of typhoid fever in which the prominent symptoms of inflammation of the lungs are possibly to be ascribed to the typhoid bacillus alone, or to this bacillus in conjunction with some other infective organism. It has long been known that there are two forms of pneumonia,—sthenic and asthenic. The latter form has often been termed typhoid pneumonia on account of the weakness, delirium, and the tendency to collapse. This is objectionable, because in many cases of asthenic pneumonia the heart weakness is present from the beginning without any signs of typhoid fever. In others the patient does look as though he had typhoid fever. Difficulty often arises because there is no cough or expectoration, and because of abdominal symptoms which resemble typhoid fever. The actual combination of typhoid fever and pneumonia, produced by the pneumococcus, is not common, and the diagnosis is extremely difficult. He concludes that, in view of the fact (1) that the majority of pneumonias occurring in the course of typhoid fever are not caused by Eberth's but by the pneumococcus, and (2) that asthenic pneumonia with so-called typhoid symptoms have nothing in common, so far as etiology is concerned, with typhoid fever; it would seem advisable with our present knowledge to discard the term typhoid pneumonia as savoring too much of inaccuracy. For those rare cases in which it can be proved without doubt that the pneumonic process as well as the general typhoid infection are both due to the bacillus of Eberth. We still have the term pneumotyphoid,—the use of which, however, should be subject to these limitations.

Hay Fever.

Douglass (*New York Medical Journal*, September 2, 1899), after speaking of the local remedies which he always uses, says, "The most important remedy to use internally is dried suprarenal gland." In his experience, it is almost a specific for the symptoms of hay fever, and a remedy to safely and surely restore the over-distended condition of the nasal erectile tissue. It may be used either as a spray to the mucous membrane of the nose or internally. The tablets are given every two hours day and night until some prostration is produced. They are then discontinued.

Dorsal Percussion.

Ewart (*Lancet*, London, July 29, 1899) says that in the normal chest the dorsal percussion areas include three resonant and three dull outlines. (1) A median strip of spinal resonance along the tips of the spinous processes; (2) lateral bands of vertebral resonance on either side of the spine; (3) scapular resonance; (4) interscapular dulness; (5) posthepatic dulness; (6) postsplenic dulness. It is quite possible to miss these areas in a rapid and strong percussion. Both arms should be crossed in front, the head inclined, and careful percussion performed. If the pleximeter is used and light strokes made on the spinous processes from above downward, it will be found that all of the spines do not give the same note. The resonance is about the same until the fifth spine is reached, this spine is dull as compared with those above and below. This is due largely to the normal post- and infratracheal glands. The sixth and seventh spines are also dull, due to postcordial dulness. There is also dulness over the eighth and ninth, due to the left auricle. Practically any abnormal dulness of a spinous process may mean to the surgeon inflammation of the body of that vertebra, or the presence of pus in the body. He considers an abnormal

fifth-spine dulness of the greatest importance in making a diagnosis of enlarged glands in early tubercular disease. By paying attention to the normal post-hepatic and postsplenic dulness one may avoid attributing such dulness to pleural or pulmonary disease. The lower dorsal dull patch is one of the signs of pericardial effusion, and is not due to enlarged heart. The dulness over the eighth and ninth spines is due often to enlargement of the left ventricle.

Diazo-Reaction in Erysipelas.

Coste (*Gazette hebdomadaire de Médecine et de Chirurgie,* August 13, 1899) says that this reaction is the same in grave cases and those of less intensity. It is exceptionally absent in benign cases. Its absence is a good prognostic sign. In cases of grave erysipelas, where the reaction has been present for several days and disappears suddenly without improvement of the general condition, a fatal issue may be looked for. Because of its regularity and intensity in cases treated by the cold bath, it may be said that this treatment is of great value in eliminating toxins. The reaction is of considerable prognostic value in cases of grave erysipelas.

Muco-Membranous Colitis.

Vouzelle (*Gazette hebdomadaire de Médecine et de Chirurgie,* August 13, 1899), in a study of this disease, says that there is, perhaps, no disease with a greater number of names; that it is a disease eminently chronic, characterized essentially by phenomena of atony and spasm of the intestines, often accompanied with pain, constipation, and by the passage of mucous cells. The most important symptom is the presence of these mucous cells. The glands of the intestines are more or less inflamed. The mucus is discharged in forms that look like coagulated white of egg. The volume of the matter is more or less variable, sometimes there are very little cylinders, veritably bearing the shape and size of the intestines. Sometimes they are scybala, constipation is always present, sometimes these mucous material accumulate in the intestines until there are signs of obstruction, then the quantity discharged is extraordinary. Diarrhea may follow this obstruction, and may persist for several days, to be followed again by constipation. The pain is of two kinds. A constant pain which varies in intensity and crises of pain which continue for greater or less time.

Antipyrin in Dysentery.

The *Maryland Medical Journal,* September 2, 1899, quotes from the *Therapeutic Gazette* the following: Seventy-five grains of antipyrin are dissolved in eight ounces of water and used as a rectal injection, given three times a day, and retained fifteen minutes. It is claimed that the relief from pain and tenesmus is immediate and the number of stools is decreased, and that convalescence is speedily established.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

CHARLES H. FRAZIER, M.D., AND GEORGE M. PURVES, M.D.

Wounds of the Heart and Pericardium.

Loison (*Revue de Chirurgie,* January, February, June, and July, 1899) has prepared a monograph of high importance on wounds of this class. The tables are drawn up with great care, and are well analyzed. The first series of tables (*loc. cit.,* January) include twenty-three cases of wound by needles or pins. Of these nine recovered; in two of these nine operative procedures failed, the pericardium being opened in one instance and the eye of the needle seen projecting from the surface of the right ventricle (Foy); in the other case the eye could be felt just under the skin, but when a skin incision was made, the needle was accidentally pushed in farther and lost, yet the patient was well long after the accident (Macdougall). In three of the nine recoveries the needle was extracted by slow rotary movements, lest rapid extraction should set up hemorrhage; in three a skin incision was made over the point where one end of the needle could be felt. In one, the last of the recoveries, the fifth rib was resected, the pericardium opened, and the pleura accidentally incised as well. The needle was seen running transversely into the right ventricle, but could not be extracted. Pneumothorax and pleural effusion followed, but the patient recovered (Stelzner). Loison places Stelzner's case by itself, though, strictly speaking, it should be added to the two recoveries after failure to extract the needle. The fatal cases exhibited very varied symptoms, dependent on obvious causes. The second series (*loc. cit.,* February) includes no fewer than ninety cases of wound by piercing and cutting instruments (knife forty-eight times, dagger eight, less frequently sword, bayonet, lance, knitting-needle, awl, etc.); seventy-nine of these cases ended fatally. Of the eleven recoveries operative measures were undertaken in all but one,—namely, incision and plugging of the pericardium, three; incision and drainage of a secondary pyopericardium, two; suture of the pericardium, three; suture of heart and drainage of pericardium, one (Behn, *Archiv für klinische Chirurgie,* Vol. lv, 1897, p. 315); and suture of the heart and of the pericardium. The one recovery without operation was murdered a year later; a cicatrix was found in the ventricle, and the pericardium adhered to the scar in the thoracic wall (Reifer). The third series includes 110 cases of injury from firearms (*loc. cit.,* June). Here the mortality, as might be expected, is very high, only three cases of which any after-history is given having recovered. In the first the heart was exposed by a charge of shot tearing open the thoracic wall. The wound was plugged with gauze (Körte). In the second, perhaps the most remarkable of all instances of recovery after injury of the heart, the patient was wounded in a duel. The fifth rib was fractured over the pericardium. It necrosed and was partially resected; later on the exposed pericardium was opened and let out much pus from its cavity (Langenbeck). In the third case a

revolver bullet entered the fifth left intercostal space a little internal to the mammary line and passed out below the scapula. There was much external bleeding and yet no collapse. The pericardium, which had been torn open, was sutured and drained; the pleura was also drained. The aperture of exit, which exposed an unwounded spleen, was likewise sutured and drained (Riedel). All these three cases were, it would appear, wounds of the pericardium, not of the heart. Loison's fourth and final series includes fifty-four cases of wound and rupture of the heart by contusion of the chest (*loc. cit.,* July). Three recovered, two of these without treatment, and one after opening of the pericardium to let out blood three weeks after a foot-ball accident (Mansell-Moullin). Loison concludes, after analyzing the symptoms of wounds of the heart and pericardium, that they are not more uncertain than those of wounds of the peritoneum and certain abdominal viscera; that diagnosis is equally difficult and delicate in one case as in another, always requiring all the vigilance of the surgeon, and that prognosis is not always gloomy nor surgery always useless.

Minni (*Giornale internazionalle delle Scienze Mediche*) has found, after a careful study of statistics, that only 19 per cent. of the cases of penetrating wounds of the heart are immediately fatal. Operation in these cases gives the best possible hope of saving life, provided no time be lost in undertaking it. He mentions eight cases treated by suture, and gives the details concerning one of them which occurred in his own practice. In Farina's case the wound, which was situated at the apex of the right ventricle, was seven millimetres (one-fourth inch) long. It was immediately sutured. The patient died on the sixth day, from pneumonia. In Rehn's case the situation of the wound was similar; it was half an inch long. The operation of suture was performed twenty-four hours after the infliction of the wound. The pericardium and pleura were drained. The patient recovered. In Cappelen's case the wound was at the apex of the left ventricle, three-fourths inch in length. The left coronary artery was wounded. Primary union took place, but the patient died of pericarditis on the second day. In Parozzani's first case the situation and size of the wound was the same as in Cappelen's. After twelve hours the wound was sutured, primary union took place, and the patient recovered. In Parozzani's second case the wound was in the same situation, but only half an inch long. The operation was performed within a few hours. There was primary union, but the patient died of collapse on the second day. In the author's case the wound was one inch long, involving the anterior wall of the left ventricle, a little below the transverse sulcus, and a little to the outer side of the longitudinal sulcus. The patient was operated upon almost immediately, but he died before the suture was completed. In Giordano's case the wound involved the edge of the left ventricle, and was three-fourths of an inch in length. After two hours had elapsed the heart and pericardium were sutured, and the pleura was drained. Death occurred on the twentieth day, from septic pleurisy. In Parlavecchio's case the wound was V-shaped; each arm of the V measured one and one-fourth inches. The heart was sutured, and complete recovery took place.—*British Medical Journal.*

Severe Subcutaneous Injury to the Peroneal Nerve relieved by Operation.

Hogarth (*Lancet,* London, July 29, 1899) reports two cases of injury to the peroneal nerve. Both accidents were received while playing foot-ball, and consisted of a severe blow over the outer side of the knee. In both there were inability to stand, paralysis of the extensor muscles of the toes and of the flexors

of the ankle, and anesthesia of the skin of the dorsum of the toes and of the foot. In both there were well-marked reactions of degeneration in the exterior muscles of the leg; the foot, if raised, assumed the position of equinus, and the toes dragged in walking.

Operation was performed, three months after the injury in the first case and two months afterwards in the second. An incision nine inches in length was begun on the inner side of the tendon of the biceps, and continued downward in the course of the nerve around the head of the fibula. In the first case the nerve was found to be embedded in dense cicatricial tissue around the head of the fibula, to which it was adherent. It was implicated to the extent of about four inches. These adhesions were thoroughly divided. Within twelve hours the skin supplied by the nerve, which had been cold and bluish, was warm and red, and sensation was beginning to return. Sensibility had completely returned at the end of a month.

In the second case the nerve was found tightly bound to the biceps for about an inch, and was, as in the other case, dissected free. Three months after the operation the patient was reported well and able to do anything.

The author says of this class of cases, as long as the muscles give a response to the galvanic current there is hope of recovery, and the operation is worth doing. If there is commencing reaction of degeneration in any case with complete paralysis, and no signs of improvement six weeks after the injury, the operation should be performed without waiting any longer. In some cases the muscles do not show signs of improvement for three or four months after operation, and recovery may not be perfect for twelve to eighteen months. In general it may be said that, if the injury has occurred within three or four months, recovery will be perfect, but after that time the result will be doubtful. If the muscles do not respond at all to galvanism, they will never recover, and the operation will be of no use, except that sensation may be restored. Sensation is said to have occurred in one case operated upon nine years after the injury. Massage and galvanism are essential in the after-treatment.

The Surgical Treatment of Non-Malignant Diseases of the Stomach.

Petersen (*Deutsche medicinische Wochenschrift*) publishes the results of all the operations for non-malignant gastric affections, amounting to seventy-six, which have been performed in Czerny's clinic in Heidelberg. Fifty were for simple ulcers and their sequelæ. Pyloric stenosis with great motor deficiency accompanied by emaciation and a permanent diminution of the quantity of urine is an absolute indication for operative interference. When internal treatment fails, (1) severe atonic motor deficiency, (2) profuse hemorrhages, and (3) severe gastralgia with uncontrollable vomiting, whether depending on recent ulceration, cicatrices of ulcers, perigastritis, or adhesions, also demand surgical treatment. The same is true of many of the complications of cholelithiasis, such as pyloric or duodenal obstruction and adhesions, and also of the results of drinking caustic fluids and of the rare tuberculous stricture. From the point of view of mortality, the cases can be divided into two periods: thirty-two before September, 1895, with seven deaths (22 per cent.), and forty-four after that date, with only one death (2.3 per cent.). This great improvement is to be explained by (1) the operation having been performed earlier, when the patients were in better condition; (2) greater experience in the choice of cases, and especially the substitution wherever possible of gastro-enterostomy or pyloroplasty for exci-

sion and resection; (3) improved technique, especially the use of Murphy's button, which has reduced the time required for the operation from three-fourth to one-fourth hour, allowed the patients to be fed by the mouth directly after the operation, lessened the chance of subsequent pneumonia, and abolished the danger of the formation of a "spur." The permanence of the results in pyloric stenosis depend chiefly on the kind of operation. Thus gastro-enterostomy (generally posterior) gave the best results, twenty-five out of thirty-seven cases being completely and finally cured, while occasionally after pyloroplasty, gastro-enterostomy had to be performed later for recurrence of the symptoms. Circular resection of the pylorus and excision of the ulcer were the least satisfactory both as regards the immediate and remote results. It appears that tetany, when of gastric origin, can be cured by a suitable operation. Some of the operations for hematemesis were of special interest. In three, where the hemorrhage was parenchymatous (? due to vicarious menstruation) surgery failed entirely. In one other, with typical symptoms of gastric ulcer, gastro-enterostomy plus partial excision of the ulcer arrested the hemorrhage at once, and a similar result was obtained in another by gastro-enterostomy alone. If this last operation should prove to be the rule, it would be a great advance in treatment, as one of the chief arguments against operating for hematemesis is the frequent difficulty in finding and the time lost in searching for the bleeding point. Of great interest is the effect of gastro-enterostomy on the gastric function: (1) Dilatation diminishes at first rapidly, then slowly, though the stomach is seldom reduced to its original size. (2) The motor function is, as a rule, completely restored. (3) The percentage of hydrochloric acid in the gastric secretion sinks after the operation. Thus, if previously there was hyperchlorhydria, hydrochloric acid is still found after the operation, but, if originally normal or deficient, afterwards it almost always disappears permanently. However, neither the absence of hydrochloric acid nor the frequent regurgitation of bile, gives rise to any abnormal clinical symptoms. (4) Lactic acid disappears. The frequency with which surgery should intervene in non-malignant gastric affections depends largely on the actual danger to life of simple ulcers, and this point is as yet unsettled. However this may be, many gastric disorders remain rebellious to internal treatment, and as the danger from the operation is steadily diminishing, surgery will doubtless take a more important position in their treatment.—*British Medical Journal.*

Post-Anesthetic Paralysis.

Mally (*Revue de Chirurgie*) has been led by an analysis of thirty-four cases of paralyses, following the administration of an anesthetic, to the conclusion that such neuroses are very rarely, if ever, caused by any toxic action of the anesthetic agent. Among the paralytic phenomena reported as consecutive to anesthesia, there are two groups—those of hysterical and reflex paralyses—that have no correlation at all with this condition. Paralyses of central origin, and due to cerebral hemorrhage, are rare results in which anesthesia has apparently provoked a vascular rupture in a purely mechanical way. Peripheral paralyses are frequent complications of anesthesia. These are usually caused by compression. The action of the anesthetic plays but a very indirect part in their production by favoring involuntary and accidental compression of the trunks or branches of the brachial plexus. It is impossible, the author holds, to attribute these forms of paralyses to any toxic or depressing action of the anesthetic.—*British Medical Journal.*

THERAPEUTICS.

UNDER THE CHARGE OF

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AND

ARTHUR A. STEVENS, M D.

Finsen's Phototherapy.

Bie (*British Medical Journal,* September 30, 1899) describes the methods employed by Finsen in treating lupus, and certain other affections, by means of concentrated light. Finsen is well known from his red-light treatment of small-pox, which was founded on the following considerations:

As the "chemical" (blue, violet, and ultraviolet) rays of light are capable of causing an inflammation of the healthy skin, it might be assumed that they would be equally capable of aggravating pre-existing inflammations. In other words, if the diseased skin be protected against the injurious action of the chemical rays of light, it will be possible to diminish the intensity of the inflammation, and thus prevent suppuration. The object is, therefore, to exclude the chemical rays of light which are injurious to the skin. In the new way of treatment, devised by Finsen, these rays are now used as curative agents. The method consists in treating local superficial bacterial skin-diseases by the concentrated chemical rays of light. The experimentally proved data on which the method is founded are the following:

(1) The bactericidal property of the chemical rays of light; (2) the power of the chemical rays of light to produce an inflammation of the skin; (3) the power of the chemical rays of light to penetrate the skin. It is only when the light is concentrated in such a way that it contains as many blue, violet, and ultraviolet rays as possible that its bactericidal property becomes so powerful that it can be used therapeutically with advantage. The concentrated electric light, which Finsen now uses for patients, kills the bacteria till now examined in a few seconds, when they are spread in a stratum of agar, about one-fifth millimetre thick. In the treatment of patients sunlight is used in summer, otherwise the light of the electric arc lamps of 50 to 80 ampères. In order to avoid burning of the skin and to make the light stronger, the sunlight is passed through a convex lens, made of blue glass and containing a weak ammoniacal solution of copper sulphate. The blue color excludes a considerable amount of the red and yellow rays, and the copper solution absorbs the ultra red rays,—the three rays which have a strong heating effect, while their bactericidal power is insignificant. For concentrating and cooling the electric light the rays are passed through quartz lenses and water.

Some 350 cases of lupus vulgaris were treated. The first patients were treated entirely by light; the same thing being done with all the slighter cases; on the other hand, in the more serious cases the treatment by light was assisted by treatment with pyrogallic acid ointment, in order to make the skin as smooth and easily penetrable by the light as possible. While one part was being treated by light the pyrogallic acid was applied to another part; when the cauterization was healed by zinc ointment this area of skin was treated by light; this treat-

ment with ointment was deemed unnecessary for obtaining a good result, but was used because it saved much time. The ulcerations were kept clear of crusts by cataplasms of boric acid solution. The mucous membranes were touched with a solution of iodide and potassium iodide (1 : 2 : 2), or were treated with the galvano-cautery. For the present, at least, only the skin, hard palate, front part of the septum nasi, tongue, and mucous membrane of the cheek can be cured by this method. In none of the cases was the treatment quite without effect, but in five the improvement was very slow. In all the 350 other cases the result was very satisfactory. The advantages of the method are, besides its reliability, its excellent cosmetic results, the infrequency of relapses, and their slight extent, and the fact that the treatment is painless. In lupus erythematosus, while the treatment was not so sure, it gave, in many cases, excellent results,—permanent recovery and firm scars. Seven cases of alopecia areata were cured, a fact which supports the theory of the infectious origin of this disease.

Eudoxine in the Intestinal Affections of Childhood.

Blech (*New York Medical Journal,* July 8, 1899) has used eudoxine successfully in the treatment of sixty-three cases of infantile diarrhea. Of these two died,—one patient with acute dysentery, seen on the tenth day, and one patient, aged nine months, with acute ileo-colitis. Recoveries took place: Thirty-eight in twenty-four hours; twelve in two days; two in three days, and six in four days. Eudoxine is a compound of bismuth and iodine, containing about 19 per cent. of the former and 50 per cent. of the latter. It appears as a reddish-yellow powder, tasteless, odorless, and insoluble in water. The dose for infants is two to three grains; for children of 5 to 10 years, three to five grains.

Thyroid Extract for hastening Union of Fractures.

Lambret (*Echo médical du Nord,* June 11, 1899), reasoning from the good results obtained with thyroid extract, by Gauthier and others, in delayed union of fractures, decided to try the influence of thyroid medication in the treatment of recent fracture. He administered three grains of the gland, thrice daily, to a man who had broken both bones of the leg, in a railroad accident. Since perfect union was secured by the seventeenth day, he is hopeful that in similar cases the time required for union of the fragments may be materially shortened by this method of treatment.

The Uses of Naphtalan.

Merlin (*Wiener medizinische Wochenschrift,* No. 5, 1899, and *The Medical and Surgical Review of Reviews*) has experimented with naphtalan in seventy-nine cases, which comprised cases of phagedenic venereal sores, gonorrheal epididymitis, ulcers of the leg and foot, varicose ulcers, parasitic sycosis, impetigo contagiosa, acute eczema, chronic eczema of the scrotum, and burns of the first and second degrees. In venereal sores no change was produced on the progress of the sores, but in phagedenic sores with much discharge the latter was checked and healthy granulations promoted. In the cases of epididymitis the drug was applied twice daily on lint. It is quickly absorbed, and the inflam-

mation subsides in eight to ten days; no folliculitis or irritation of the skin being produced. Ulcers of the leg and foot much inflamed and in a foul state, after being cleaned with ether, were healed in five to ten days by the application of naphtalan plaster. In cases of varicose ulcers healing occurred under naphtalan after a previous operation on the saphenous veins by Trendelenburg's method. Good results were also obtained in sycosis and acute and chronic eczema. In a case of severe weeping eczema of the scrotum, the irritation of which caused sleepless nights, the application of naphtalan after three days enabled the patient to sleep, and the eczema was cured in four weeks. No irritation appears to be caused by the application. The burns were also benefited, and the pain soon disappeared under treatment. The writer strongly recommends naphtalan in dermatology, but it is of less value in syphilitic and venereal sores.

The Treatment of Paralysis Agitans.

Collins and Muskens (*New York Medical Journal,* July 8, 1899) report twenty-four cases of paralysis agitans, and discuss the treatment of this affection. As in all other nervous diseases, the dietetic and disciplinary treatment are of the greatest importance. The first indication is for the arrangement of an uneventful life, free from care, strife, excitement, and sordidity, in a congenial environment and healthful climate. As a rule, a cool climate is far more grateful than a hot one. The diet should be simple, nourishing, and strengthening. It is absolutely necessary that the patient has the personal care of an attendant, or one of the family. Lukewarm baths, of from twenty to thirty minutes' duration, are oftentimes soothing to the patient. In patients under 40 years of age, applications of water from 90° to 75° F. from the hand of an attendant, followed and accompanied by friction, are sometimes serviceable in combating the distressing attacks of local and general heat of which the patient complains. The authors have never seen anything but detriment attend the use of Swedish gymnastics, though gentle massage is sometimes beneficial. The most important drugs are hyoscyamus and duboisine. Given hypodermically, which is preferable when possible, or by the mouth, they promptly mitigate the severity of the tremor, and have a pronounced tendency to relax the muscular rigidity. Both drugs must be used with care. Personally the authors prefer duboisine to hydrobromide of hyoscine. Of the sulphate of duboisine one one-hundredth to one-sixtieth of a grain should be given two or three times daily. On the accession of dryness of the mouth, nausea, vertigo, paresthesia, or disturbances of vision, the drug should be stopped. Bromides are powerful agents for harm. In some instances, especially when hyoscine and duboisine fail, some mitigation of the tremor and rigidity may be obtained by the use of gelsemium or veratrum viride. These remedies have been found by the authors more useful than Indian hemp.

Formalin in Surgical Tuberculosis.

Hahn (*Centralblatt für Chirurgie,* No. 24, 1899) states that he has obtained excellent results from a mixture of formalin and glycerin, 1 to 5 per cent., in the treatment of surgical tuberculosis. As an injection into abscesses connected with diseased joints, the author believes that this mixture is superior to an emulsion of iodoform.

Arsenic as a Corrigent in Thyroid Medication.

Mabille (*Revue de Thérapeutique,* No. 9, 1899) states that Fowler's solution, in doses of three to twelve drops, offsets the untoward symptoms occasioned by the administration of thyroid extract in full doses. He reports a case of goitre, in which the nervous symptoms,—vertigo, tremors, dyspnea, etc.,—excited by the extract, disappeared when Fowler's solution was added, and reappeared when the latter was withdrawn. In two other cases similar effects were observed.

OBSTETRICS.

UNDER THE CHARGE OF

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ASSISTED BY

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Protargol and Argonin in the Treatment of the Purulent Ophthalmia of Infants.

Edward S. Peck (*Medical News,* January 21, 1899) believes that argonin and protargol are superior to silver nitrate in the treatment of ophthalmia in that they cause quicker destruction of the gonococcus, earlier disappearance of the secretion and inflammatory process and resolution of the injured corneal and conjunctival tissues. Protargol contains more silver than either silver nitrate or argonin. It is more germicidal than argonin, and, though more painful, is less likely to irritate; it does not require a stronger solution than from ½ to 2 per cent. In some of the cases treated by the writer with protargol the gonococci disappeared in two weeks, and in none later than four weeks; he has also found less ulceration of the cornea, with iris protrusion and incarceration, less corneal staphyloma, and less cicatrization of the conjunctiva than with silver nitrate, due, no doubt, to prompter resolution of the injured parts from the earlier disappearance of the gonococci and of the secretion and inflammation. For bacteriologic examination the writer uses simply a cover-glass preparation stained with methyline blue, in a field magnified 750 diameters; fifteen to twenty pus-cells containing gonococci would be a large number; and when these cells contain from twenty to a hundred diplococci they may be said to be rich in bacteria. The writer's procedure in these cases is as follows: If one eye only be affected, the other eye must be covered, save a small opening at the temporomalar portion of the orbit. The best covering for a new-born child's eye is lintine; a piece slightly larger than the orbit is put on first, then a little sterilized cotton, then gauze, and finally the whole bound in place by collodion; this protected eye should be inspected every second day. The nurse should never carry the child in her arms, and should handle the affected eye from behind. Small layers of lintine are kept on ice and placed therefrom on the child's injured eye, being changed every minute; and this treatment must be kept up unceasingly (perhaps for two or three weeks) till there is positive evidence of abatement of

the secretion. The eyeball, lid, interspaces, and conjunctival sac should be thoroughly irrigated with warm saturated solution of boric acid, and as the secretion diminishes and becomes shreddy it may be wiped away with cotton wet with the same. The solution of protargol, at first 5 to 10 per cent. (?), should be carried rather forcibly over the eyeball and into the folds of the sacs by a large pipette, and should be used from four to six times daily. As soon as the secretion lessens a 2 per cent. solution may be substituted and used less frequently. Examinations for gonococci should be made every second day, and an eye should not be regarded as safe till at least a week has gone by without finding them; as they may be still harbored in an eye that has apparently become healthy. It is of advantage to know that protargol can be combined with many other salts, also is unaffected by cocaine, atropine, eserine, etc., and is not decomposed or precipitated by the albumin or alkalies present in the secretions from mucous membranes. In some of his first cases the author used the pure protargol dusted into the eye, and later a 50 per cent. solution; but finally found most satisfactory a 5 per cent. solution, which was allowed to remain in the eye for fifteen minutes.

A Case of Annular Separation of the Cervix during Labor.

Julius Sachs (*Philadelphia Medical Journal,* January 14, 1899) was called to see a primipara in labor. Forceps had been applied three times, under chloroform, but the head could not be extracted. He considered the head impacted in the pelvis. Before applying the forceps the writer wished to make a thorough digital examination. On introducing the fingers into the vagina, a lump of soft tissue was felt, which proved to be the amputated cervix, two inches wide, and twelve inches in circumference, hanging to the uterus by about half an inch of tissue. This point of attachment was severed with but slight loss of blood. Forceps were then applied and a living child extracted. An adherent placenta was removed, the uterus washed out with a hot bichloride solution (1 to 5000), and the vagina packed with iodoform gauze. To avoid infection, the bladder was emptied by catheter until the ninth day, and the patient was out of bed the next day. As the attending physician was a careful and experienced obstetrician, it is probable that the accident was due to the pressure of the occiput against the symphysis on the one hand, and to the pulling down of the head by the forceps on the other.

Tumor of the Uterus complicated by Twin Pregnancy.

E. R. C. Earle (*Lancet,* January 14, 1899) reports a case of a colored woman attended by him in Jamaica. When brought into the hospital she had been in labor thirty-six hours, but no progress had been made. A large, elastic, fixed tumor was found occupying the pelvic brim. There was a space of about an inch between the anterior surface of the tumor and the symphysis. When the patient was standing the os could not be reached, and the abdomen was greatly distended. When in a recumbent position the os could be felt on a level with the upper border of the symphysis. Cesarean section was decided upon, and performed at once. After the incision in the abdominal wall was made, the uterus was brought forward and fixed in the wound. An incision four and a half inches long was made in the anterior wall of the uterus. The membranes were ruptured, and two living male children were extracted, with two distinct

placentæ. It was then found that there was a large fibroid tumor of the body of the uterus, involving the whole posterior surface. It was about nine inches long, seven inches in width, and five and a half inches antero-posteriorly. There was another fibroid on the left of the uterus, about the size of an apple. The uterine wound was closed by silk sutures, and the abdominal wound closed without a drainage-tube, and dressings applied. The lochia remained normal, and she never had any symptoms to be referred to the wound itself. The abdominal wound healed with no trouble, except a slight amount of pus in two stitches; after these were removed and the wound strapped, union was soon perfect. But there was a persistent temperature, due to severe congestion of both lungs, which lasted for several days. On the ninth day there was indistinctness of speech, and loss of power of motion on the left side; this, however, was only noticeable for about twenty-four hours. Three weeks after the operation the temperature and pulse were normal, and a week later she left the hospital well. An interesting feature in the case was the rapid diminution in size of the fibroid tumor after the operation. At the time she left the hospital the tumor was only about one-third its original size.

GYNECOLOGY.

UNDER THE CHARGE OF

JOHN G. CLARK, M.D.,

ASSISTED BY

H. D. BEYEA, M.D., AND H. L. WILLIAMS, M.D.

A Case of Precocious Puberty.

Klein (*Centralblatt für Gynäkologie,* No 32, 1899) reports the case of a female child, two and a half years of age, in which the changes characteristic of puberty had taken place. At ten months the parents noticed the breasts were well developed, the genitals covered with hair, and recently that a hemorrhagic discharge took place regularly every month, and that it continued for eight days. After it appeared for nine months it did not appear again for four months. Regardless of tonics (stypticin), it continued for seven months, and then completely disappeared with an attack of measles.

Sterile or Antiseptic Ligature Material.

Haegler (*Centralblatt für Chirurgie,* No. 5, 1899) studied the condition of infected ligatures in cases where such ligatures had been discharged after many months without causing inflammatory changes in the surrounding cicatricial tissue. He found the secretion about the ligature was usually free from bacteria, but that sections of the ligature knot (silk) contained numerous bacteria. Since this ligature material was certainly made sterile by boiling, etc., the writer concludes it was infected by the hands of the operator, and that sterile ligatures, which are drawn through the fingers of the operator, are never after sterile, unless the ligature contains a quantity of an antiseptic ($HgCl_2$). If silk ligatures

are impregnated by a bichloride of mercury solution, they remain free from bacteria, except when handled with unprepared hands or hands infected with bacteria. Since sublimate silk has been employed at the Baseler Klinik (four months), no infection of ligatures has been observed. The impregnation of silk with sublimate may be attained as well by boiling for a short time in sublimate solution as by allowing it to remain in such a solution for several days.

The Therapeusis of Salipyrin in Gynecology.

Beuttner (*Centralblatt für Gynäkologie,* No. 37, 1899) reports the results of his experiments on rabbits and frogs to determine the therapeutic influence of salipyrin. He also considers the experience of other authors with this drug and its indications.

Salipyrin, he believes, is indicated as follows:

(1) In menorrhagia (with or without disease of the adnexa).

(2) In metrorrhagia (with or without disease of the adnexa), when not due to carcinomatous processes, large tumors, labor, or abortion.

(3) In climacteric hemorrhages.

(4) In hemorrhage after labor and abortion (endometritis post abortion).

(5) In threatened abortion.

(6) In dysmenorrhea.

(7) In uterine disturbances, which are neuralgic or appear periodically; also in all menstrual disturbances, when no organic disease of the uterus is present.

(8) In premenstrual and menstrual psychical depression.

Tumors developing in the Abdominal Wall.

Olshausen (*Centralblatt für Gynäkologie,* No. 32, 1899), at a recent meeting of the Gesellschaft für Geburtshülfe und Gynäkologie of Berlin, spoke regarding tumors developing in the abdominal wall, and especially of the fibroid variety. He has observed twenty-two such tumors during the last twelve years, twenty of which were removed by operation. All occurred in women who had borne children. It is his belief that there is a close relationship between these tumors and pregnancy and labor; and furthermore, as shown by Virchow's investigation, the result from injury or tearing of the muscle fibres in the posterior portion of the rectus muscles.

The diagnosis is easily determined in the greater number of cases, but where the tumor is very large it is often most difficult.

They should be treated by operation, care being taken not to open the peritoneal cavity.

Finally, he described two cases of very uncommon tumors of the abdominal wall,—one a carcinoma which appeared one and a half years after an ovariotomy, and the other an ovarian tumor eleven years after an ovariotomy.

At the same meeting Pinkus demonstrated a fibroid tumor, the size of a fist, which he found embedded between the internal oblique and transversalis muscles. Flaischlen also described a case where he removed three fibroid tumors from the abdominal wall. They originated in the posterior wall of the rectus muscle and from the aponeurosis of the left external oblique muscle.

PATHOLOGY.

UNDER THE CHARGE OF

SIMON FLEXNER, M.D.,

ASSISTED BY

DAVID RIESMAN, M.D.

The Changes in the Blood-Vessels in Syphilis.

The majority of writers on syphilitic disease of the blood-vessels have confined their studies to the cerebral arteries, and the view has gained vogue that syphilis only affects the vessels of the brain. In addition to showing that syphilis may attack the arteries of other organs, Abramow's studies (*Ziegler's Beiträge zur pathologischen Anatomie und zur allgemeinen Pathologie,* Band xxvi, Heft 2) also throw light on the nature of the changes that take place in the vessels. The first case reported is that of a youth of 19 years, without a history of syphilis, who died of Bright's disease. At the autopsy the following macroscopic lesions were found: Generalized arteriosclerosis, multiple small subpericardial aneurisms, cirrhotic kidneys, the seat also of parenchymatous nephritis, acute lobar pneumonia, and edema of the brain. Microscopic examination of sections from the heart showed a high degree of thickening of the intima of the blood-vessels, the media and adventitia being for the most part normal. In the liver the vessel walls were uniformly thickened. The renal vessels presented changes similar to those of the heart. The endothelium was entirely gone. The second case was that of a young student of 25 years, who had acquired a chancre two years before his entrance into hospital, and who had received active antisyphilitic treatment. His symptoms were those of interstitial nephritis, with hypertrophy of the heart and arteriosclerosis. There was also a multiple neuritis. The autopsy revealed sclerosis of the coronary arteries, generalized arteriosclerosis, chronic interstitial nephritis, edema of the brain and its membranes, and of the lungs; pleural adhesions on the right side. The vessels of the heart presented, on microscopic examination, localized internal thickenings, with scattered involvement of the adventitia. In the coronary artery the thickened intima was on its inner side the seat of hyaline degeneration; there was also mucoid change in the new tissue of the intima. The pulmonary vessels presented nothing abnormal, nor did those of the thyroid gland. In the liver the intima of the blood-vessels was hyperplastic; this was also true of the kidney, of the stomach, and intestines, and of the suprarenal glands. The vessels of the brain showed thickening of the intima, but of a trifling degree when compared with the changes in the other organs.

Although in the first case there was no history of syphilis, the similarity of the vascular changes to those in Case II, with a distinct syphilitic history, lead the author to look upon these changes also as syphilitic in nature. [The history is so meagre that certain other factors can scarcely be ruled out, although alcohol played apparently no part. The possibility of chronic lead-poisoning has to be considered in such cases, as well as heredity, apart from hereditary syphilis.] Careful study of the blood-vessels showed that any one of the three coats might be the seat of change,—the intima presenting hyperplasia of the endothelium,

the adventitia round-cell infiltration, and the media granular degeneration. When the intima and adventitia are diseased they may grow towards each other, penetrating the wall in doing so. As a rule, the intimal changes precede those of the adventitia. Staining of the elastic tissue after Weigert showed it to be for the most part normal; occasionally, it was thickened. The formation of a new fenestrated membrane, as claimed by Heubner and by Wendeler, was not observed by Abramow, only a splitting of the old. In the second case the cardiac and renal vessels showed in the thickened intima mucoid, granular, and caseous areas. Caseous areas were seen in the adventitia of the peripheral arteries. This is interesting, as it was claimed by Heubner that regressive changes did not occur in syphilitic arteritis. Abramow looks upon the caseous areas of the adventitia as degenerated gummata.

He takes up the question whether there is anything specific in the vascular changes in syphilis, and concludes that only a gummatous arteritis is specific. Syphilis may produce diffuse hyperplasia of the intima, but the syphilitic origin of this cannot, in the absence of gummata, be recognized by the microscope.

Contribution to the Knowledge of Malaria.

Schuffner (*Deutsches Archiv für klinische Medicin,* Band lxiv, p. 428) recommends that the use of the fresh preparation in the case of malarial blood be confined to a study of the life phases of the parasite, but that for purposes of diagnosis dry preparations be employed. He thinks that it is advantageous to dissolve out the hemoglobin before staining the corpuscles. This can only be done if the latter are fixed in certain ways. Fixation is best accomplished by drying in the air. He finds that exposure to the atmosphere in a place protected from light fixes in from six to thirty hours. How the air acts he does not know; probably by some chemical action of its constituents. The slide (Schüffner spreads the blood on the slide), after fixation in the air, is laid film downward in a 1 per cent. formalin solution containing 5 per cent. of glycerin, and kept there from five to ten minutes. It is then laid in a similar manner in a dish of fresh water for from one-quarter to one minute, and then stained with hematoxylin for one to ten minutes, washed in water, dried, and covered with balsam. Treated in this manner the red corpuscles are of a faint blue color, and the parasite, even the smallest, is distinctly visible as a dark-blue, more or less pigmented disk.

The author takes issue with those that speak of typho-malaria and malarial dysentery. Stationed in Sumatra, where malaria is abundant, he has seen eight cases of typhoid fever without parasites in the blood, and ninety-five cases of dysentery in which the organism was either not found at all or occasionally as a complication. Moreover, not a single one of 150 deaths was due to malaria. He does not deny that there can be a form of malaria with intestinal lesions, but his experience has not shown the existence of any.

The Effect of the Parasites on the Red Blood-Cells.—The quartan parasite leaves the normal yellow color in that part of the red corpuscle not occupied by it, and the red cells preserve their normal size. In the case of the tertian parasite the red corpuscle becomes pale and much enlarged, corresponding to the growth of the plasmodium. Quite different results are seen in infection with the small parasites of pernicious malaria; the red cells, in this case, frequently become smaller and wrinkled, the yellow color increasing in intensity. The resemblance of the yellow color to that of old brass (Messing) has given rise to

the name of "brass bodies" (Messingkörperchen). Another feature of the red corpuscles is that described by Mannaberg,—viz., the presence of clefts. The author believes that the tertian and the quartan parasites are entirely distinct, and gives the following table of differences:

	Quartan.	Tertian.
(1) Young form	Slightly motile.	Freely motile.
(2) Contour	Sharp.	Indistinct.
(3) Pigment	Coarsely granular.	Finely granular.
(4) Red blood-cells	Normal volume.	Increased volume.
(5) Red blood-cells	Normally colored.	Paler.
(6) Sporulation form similar to	Aster.	Sunflower.
or to	Rosette form.	Bunch of grapes.
(7) Sporulation form breaking up into	Six to twelve.	Fifteen to twenty.
(8) Spores contain in fresh preparation	A brilliant nucleus.	No nucleus.

But more valuable than any of the features of this table is a peculiar staining reaction which the author describes: The red corpuscles containing the tertian parasite present, except in their earliest youth, a very fine punctation, while the red cells in the case of the quartan form do not.

The Demonstration of Tetanus Bacilli in the Organs of Experimental Animals.

Von Œttingen and Zumpe (*Deutsches Archiv für klinische Medicin,* Band lxiv, p. 478) made some interesting experiments after having observed the following case: A woman, 22 years of age, had run a sliver under the thumb-nail of her right hand, on the 4th of May, 1897. Nine days later tetanus developed, from which she gradually recovered under the use of Behring's antitoxin. They went to the woman's home, secured some splinters from the floor and some earth from the garden, and inoculated fifteen mice. Within three or four days five of the animals died of tetanus. The heart and spleen of one of the mice were placed in ordinary alkaline bouillon. After forty-eight hours in the incubator the bouillon containing the heart was turbid and exhaled a very penetrating odor. A smear preparation showed a mixture of cocci and bacilli, many of the latter being of the "drum-stick" form. Injection of this culture into mice produced tetanus. The conclusion was justified that the bacilli had been present in the heart's blood and had grown aërobically. Seventy-three animals were then inoculated, some with the material from the woman's house, some with artificial splinters made by soaking pieces of wood in the bouillon culture and letting them dry, some with pus and splinters from the point of inoculation in animals that had died of tetanus, some with bouillon cultures inseminated with material from the inoculation wound, and some with bouillon cultures made from the organs of animals dead of tetanus. Of the seventy-three animals forty-five died, and among the latter tetanus bacilli were found in the organs in twenty instances. The bacilli were demonstrable in the cultures as early as the second or third day. The authors were also able to find the organism in tissue sections stained with Gram's method. They usually took a part of the organ to be examined, placed it in a moist chamber in the incubator, without excluding the air, and then were able to demonstrate the bacilli in the expressed juice after two or three days. For purposes of sectioning, the organs were hardened in sublimate and alcohol. They found guinea-pigs more susceptible than mice, 52 per cent. of the dead guinea-

pigs containing the bacilli, against only 31 per cent. of the mice. As the organisms were found in different organs, it seems most likely that they were disseminated through the blood-current. Conditions favoring this dissemination are: marked susceptibility of the animal, a high degree of virulence in the culture, and, above everything else, the use of a mixed culture. The nature of the synergic organism seems to be unimportant. Regarding the growth of the tetanus bacillus under aërobic conditions, the authors found that this only occurs in the case of mixed cultures. They were only able to obtain pure cultures when they grew the organisms under hydrogen gas.

CORRESPONDENCE.

EXTINCTION OF THE MALARIAL-INFECTED MOSQUITO BY EUCALYPTUS.

To the Editors of University Medical Magazine:

Dear Sirs,—I submit the following correspondence from the United States Department of Agriculture, Division of Entomology:

"Washington, D. C., September 5, 1899.

"Dear Dr. Ashmead,—I have your letter of the 4th inst. I know nothing from personal experience regarding the influence of the eucalyptus upon mosquitoes. I have read a number of statements as to the repellent influence of this plant upon mosquitoes, but as I knew none of the observers, personally do not know their reputation for careful observations or even for accuracy, I have not formed any positive opinion.

"Mr. Alvah A. Eaton, of California, wrote me some years ago that no other remedy than blue gum need be sought for. No matter how plentiful the mosquitoes, a few twigs laid on the pillow at night, he stated, would secure perfect immunity.

"Mr. W. A. Sanders, also of California, wrote about the same time (1893 or 1894) to the effect that he had a grove of eucalyptus trees near his house, with his large irrigating ditch running through it. Mosquito larvæ, he stated, were plentiful in the ditch outside of the grove, but there were none in the grove; people working in a jungle of 'fence bamboo' near the grove were badly bitten by mosquitoes, which were not to be found in the grove.

"It is only such evidence as this which has come to my attention, and your judgment as to what it is worth will be as good as mine.

"Yours, very truly, L. O. Howard,
"*Entomologist.*"

I wrote to both Mr. Eaton and Mr. Sanders for further information. Here is Mr. Eaton's reply:

"September 22, 1899.

"DR. ALBERT S. ASHMEAD, NEW YORK.

"DEAR SIR,—I shall only be too glad to shed what little light I can on the mosquito problem and its relation to malaria, as I have been intensely interested in recent discoveries in this line. I will give facts as I remember them (I have been in the East since 1893), and if you bear in mind that at that time the relations of mosquitoes to malaria had not been given out, so I had no special reason for investigation in this line, any erroneous conclusions I may give will not do the investigation harm.

"In the vicinity of Fresno (California), taking in a strip of country twenty-five miles south, and another east to the mountains, at an elevation of 3000 feet, I spent three and a half years.

"It is everywhere there said that the blue gum is antimalarial; that if planted in a swamp, it will drive off malaria; or, as they put it, suck it up. Although I did not know how the tree did the work, I, of course, knew that the latter opinion was absurd, for I am a student of botany, so it goes without saying that I knew neither the roots of a tree, nor any other part, could imbibe germs of disease.

"My notice, or the letter quoted, appears in 'Insect Life,' Vol. v, p. 268. I remember Professor Riley was a little incredulous in his letter to me; but I had supposed that the fact that eucalyptus would drive away mosquitoes was well known. I have seen my sister's child covered with mosquito-bites, inflicted at night so the child could not sleep. There was a small eucalyptus on the place, and she would take a few leaves, say half a dozen, crush them slightly, place them on the pillow, and not a bite would be inflicted. So much for that part of my observation.

"On page 344, of Vol. v, 'Insect Life,' Mr. Sanders gives a lucid and striking account of the effect of blue gum on mosquitoes.

"Now for the malaria. As previously stated, none of us at that time had the least idea of the connection between the two.

"It was in a level, sandy country, underlaid with an alkali hard pan which at times cropped out, especially in 'blow-outs.'

"When water is first brought in ditches, it seeps away rapidly, and after a while the water in the wells rise, then low places will become damp, and finally there will be ponds form there. This is called subirrigating. I did not know of one case of malaria in a subirrigated country. I ascribed it to the alkali in the soil and water, for it is impossible to get pure water there. My brother's farm was two miles from

Cole's Slough, 'the swamp,' as it was called, where there were plenty of mosquitoes, but they never came so far away unless there was water, when they would breed. Dry ditches meant immunity.

"Along King's River, however, there were trees, and in an old Mexican 'grant' (Rancho Laguna de Taché) malaria was prevalent. I remember stopping to drink from a well in Leemoore, and was warned not to do so by a man who said he had caught ague from it, drinking three days, I believe, before it came on. At Centreville, an old but nearly abandoned town, farther up the river, I was told that it was extremely dangerous to drink, and that nearly everybody there had the chills. This town is situated on high ground, but near the river. I know I wondered at the time if infiltration through organic matter could cause it, for I never met it only on sedimentary soil.

"Of course mosquitoes were abundant in the timber on the river.

"In the mountains I never knew a case during my nine months' sojourn, and never heard of a resident having it, but was told that people from the valley, '*with it in their blood,*' would have it, though they were well before coming up. If this be a fact, I cannot account for it.

"I have often wondered why this section (Rockingham County, New Hampshire) was so free. We have mosquitoes enough, millions of them at present, but I have heard of only one case, that of a native of this town, in the life-saving service at Plum Island. It appears that either the common variety of mosquito here will not give it or peculiar conditions of water are required.

"Referring to eucalyptus, I have often wondered why some one has not extracted the oil, which is abundant, in round, translucent dots, in its leaves, and put it on the market as an antidote for mosquitoes. I have often wished, since my return, for some leaves for experiment. I think there is money in it, and, better, comfort for many; and, judging from present appearances, health also.

"A promising line of investigation is seeing if the oil on stagnant water will drive or kill the larvæ. I think it would do so."

Albert S. Ashmead, M.D.

New York.

ROYAL COLLEGE OF SURGEONS OF ENGLAND
8 JAN 1900

UNIVERSITY
MEDICAL MAGAZINE.

DECEMBER, 1899.

THE NEW CURRICULUM OF THE DEPARTMENT OF MEDICINE OF THE UNIVERSITY OF PENNSYLVANIA WHICH WENT INTO EFFECT WITH THE SESSION OF 1899–1900.[1]

ANATOMY.

BY GEORGE A. PIERSOL, M.D.,

Professor of Anatomy.

THE present revolution in the methods of medical education that has followed the fuller recognition of the necessity of bringing the student into closer relation with Nature, whether in the laboratory or the hospital ward, has been anticipated long ago in anatomical teaching. When dissection of the human body was made a really compulsory part of the medical curriculum, the first step was taken in the progress which has emphasized, year by year, the importance of supplementing didactic teaching by direct personal observation.

The system at present followed in the practical work in Anatomy has two fundamental principles: first, that the student shall do his dissection by daylight, which alone affords really satisfactory illumination, and at hours while he is still physically and mentally fresh; second, that his work in the anatomical room shall receive the same careful direction and supervision as other laboratory exercises.

In conformity to the general scheme adopted for the division of the classes into sections, one-third of the first- and of the second-year men (together with one-third of the second-year dental class) dissect at the same time for a period of twenty-eight working days, six times weekly. The sections alternate, so that each student works throughout two periods during

[1] A number of these papers represent the remarks made at the meeting of the Philadelphia Alumni Society of the Department of Medicine of the University of Pennsylvania, held November 18, 1899; the remainder were very kindly prepared for the MAGAZINE by the respective authors.

the session. The present hours, from 1.30 to 3.45 P.M., immediately following the rest afforded by luncheon, insure a physical condition responding to the demands made by two hours of conscientious work over the cadaver.

Eight students are assigned to a body,—one to each extremity, two to the head and neck, and two to the thorax and abdomen, the first-year men appropriating arms and legs. The usual number of students dissecting at one time renders it possible to place four tables under the direct charge of each demonstrator, by whom the individual work of the men is supervised. Regular attendance and faithful work are insisted upon. The once familiar sights of neglected, partially dissected, and wasted parts are no longer encountered.

At the beginning of each day's labors the structures to be worked out and studied are briefly indicated, and suggestions and cautions given as to the best manner of proceeding with the immediate work to be undertaken. A feature greatly appreciated is the series of four demonstrations each week given in the dissecting-room, in which the most important structures of the entire body are shown; the student is thus afforded each week the opportunity of supplementing the knowledge gained by his own scalpel.

To provide increased practical instruction for men not engaged in the dissecting-room, an additional series of demonstrations has been arranged, which shall illustrate, as far as practicable, the didactic teaching. In the first year these begin with individual study of the bones as preparatory to dissection and supplementary to the osteology of the lecture-room. The students are afforded additional facilities for such study by being allowed the privilege of borrowing bones from the University after the manner of taking books from a library.

In the second year these demonstrations include the details of the central nervous system, the organs of special sense, the principal regions, and the early embryological processes. Advantage is taken of the admirable preparations and models belonging to the Medical School to set up, from time to time, for inspection and study at odd hours, series illustrating the special anatomy of particular organs.

The importance of close personal observation is recognized in the method now pursued in teaching applied anatomy. The class being divided into three sections, the resulting smaller number of students insures that each is brought within satisfactory range of the preparations and the dissections. The course has been designed to be thoroughly practical, and embraces a careful and systematic presentation of both the medical and the surgical applications of anatomy.

A potent factor in increasing the interest of students in their dissections, and hence in securing better work, has been the marked improvement in the quality of the dissecting material rendered possible by the erection of the new refrigerating plant that has been in successful operation during the last three years. Those who recall the unattractive appearance of the brine-

logged zinc chloride subjects that formerly constituted almost the only material for practical anatomy cannot fail to mark the contrast presented by the bodies now upon our tables. Carbol-arsenic preserving fluid, colored starch arterial injection, careful cleansing and wrapping, and subsequent freezing have provided our students with dissecting material the superior of which will not be found in any institution.

PHYSIOLOGY.

BY EDWARD T. REICHERT, M.D.,

Professor of Physiology.

THE instruction in Physiology embraces courses of lectures, practical work by the student, and demonstrations, which extend over two full sessions. The installation and development of practical instruction are in consonance with the rapidly growing importance of the practical method as an adjunct of the didactic.

The course of lectures consists of two lectures a week, covering, during the first year, the subject of nutrition, etc., and during the second year the heat mechanism, the nervous and muscular systems, and the special senses. Three hours a week are assigned to each student for practical work and demonstrations.

The course of practical work has been carefully and systematically planned, chiefly upon the *inductive* method of instruction. The main objects sought are, first, the illustration of the lectures by the most impressive methods; second, the supplementation of collateral work to further impress important fundamental facts and broaden their application; third, the training in the use of instruments of precision, with especial reference to the use of apparatus in clinical and experimental medicine; fourth, the cultivation of the individual's powers of observation and deduction; fifth, the encouragement of accuracy of expression and method, of collateral work and the co-ordination of facts, and of the belief that *real* education rests solely upon the foundation built by broad training in the facts, methods, and theories of the fundamental branches of knowledge.

The instruction in the practical work is given under the direction of the professor of Physiology by the demonstrator and his assistants. Each student is assigned a table and the necessary apparatus, and works under the direct supervision of one of the assistants. He is directed in technique and in what to observe, but he is self-dependent as to his results and conclusions, and must report the same for examination in the form of "graphic records" and written reports at the end of each exercise. This course of instruction has been carried on for the past three years, and has proven eminently satisfactory, and it is expected that further experience and broader application

will render it more and more valuable. The equipment employed is the finest and most comprehensive in this country or abroad, and comprises over 2000 pieces of apparatus, to which considerable additions are being made and contemplated.

Demonstrations take the place of practical work when the latter is of a character too difficult or otherwise undesirable for the student to pursue, as, for instance, work involving the use of complicated or very expensive apparatus, the use of mammals, etc. When living animals are used precautions are adopted to avoid any possibility of the infliction of pain. The work of the student on animals is, however, limited to brainless frogs.

CHEMISTRY.

BY JOHN MARSHALL, M.D.,

Professor of Chemistry.

HERETOFORE the course in Chemistry given to the first-year class included lectures on elementary physics. These lectures have been discontinued, because, with the higher requirements for admission, it is expected that the student shall have had instruction in physics before entering the Medical School. The course in the first year, at present, consists of two lectures per week throughout the session on inorganic chemistry, in which especial attention is given to theoretical chemistry. Beginning with this session, however, it is expected to consider organic chemistry in addition to inorganic chemistry in the course of lectures given in the first year. Until the beginning of this session it was the custom to have all of the members of the class work at the same time in the Chemical Laboratory. In order to execute the new curriculum the class is divided into three sections, each section working at hours independently of the other sections. This plan of division of the class into three sections is the one in force for both the first- and second-year classes. Each member of the class spends three consecutive hours each week in the Chemical Laboratory, both in the first and second years of the course. The work of the members of the first-year class in the Chemical Laboratory consists of qualitative analysis and elementary physiological chemistry, in which latter the reactions of the various proteids are studied. The carbohydrates are also studied, and digestion experiments are made.

The didactic course of instruction in Medical Chemistry in the second year consists of one lecture each week during the entire session, in which acidimetry and alkalimetry, water analysis, the analysis of the urine, physiological chemistry, and toxicology are discussed. In the laboratory the second-year class is divided into three sections, as above stated, and each

section spends three consecutive hours each week, during the entire session, in the laboratory. The practical work in the laboratory includes alkalimetry and acidimetry, in which the students themselves prepare normal, decinormal, and centinormal solutions of alkalies and acids, and make quantitative determinations of free alkalies and free acids. In the work in water analysis the students determine the hardness of water, the quantity of chlorine in water, the quantity of potassium permanganate required to oxidize the organic matter in water, the quantities of nitrites and nitrates, and a determination of the quantities of free ammonia and albuminoid yielded by water. In the work in water analysis the student also prepares some of the standard volumetric solutions employed. The work in the analysis of the urine includes the determination of the acidity of the urine and quantitative determinations of sodium chloride, urea, uric acid, kreatinin, and phosphoric acid.

The work in urine also includes qualitative tests for and quantitative determinations of glucose, albumin, bile-coloring matter, indican, acetone, and diacetic acid. Qualitative tests for and quantitative determinations of iodine in the urine after the administration of iodides of the alkalies are made. Determinations of the acidity of the stomach contents are also made.

In physiological chemistry work is done with the blood, the bile, biliary calculi, urinary calculi, etc.

In toxicology work is done in the detection of arsenic, mercury, antimony, copper, and also strychnine and morphine in food stuffs, and in animal tissues.

HYGIENE.

BY A. C. ABBOTT, M D.,

Professor of Hygiene.

With the opening of the session of 1899–1900 the Faculty thought proper to recommend that the professor of Hygiene be also made the professor of Bacteriology, and that the teaching of Bacteriology be transferred from the Department of Pathology, as hitherto, to the Laboratory of Hygiene. This change necessitated an increase in our teaching equipment, and the Board of Trustees have generously placed at my disposal all that could be desired in the way of facilities for doing this work. The work of this department is, therefore, divided into bacteriology and general hygiene.

The teaching in bacteriology consists of a set of didactic lectures, one a week, from the opening of the session until February 1, and of laboratory work so arranged that each student has two hours of practical exercises in the laboratory for twenty-eight consecutive working days. I have, for the

present at least, eliminated from this teaching the final examination, and am endeavoring to see if it is not possible to create a more continuous interest in the work by holding frequent recitations, and by grading the students upon the character of the work that they do in the laboratory. This plan necessitates a great deal more personal attention to the students than they have ever before received, and throws upon the chief and his assistants considerably more work than hitherto, but in so far as I am able to say at this moment, the outlook for the success of this method of teaching the subject and grading the men is most favorable. The character of the work done in the laboratory by the men of the second-year medical class, who come to me for bacteriology, is arranged in such a way as to illustrate in the main the various points upon which I speak in my lectures.

The work in Hygiene is, for the present at least, confined to attendance upon a course of lectures, two a week, extending from February 1 till the end of the session. These lectures are arranged to cover the most important features of the subject that relate to public health. In so far as it is possible they are illustrated by diagrams and by models. The facilities at my disposal for obligatory laboratory work in connection with this part of my subject are not, at this time, sufficient, so that such laboratory work as is done by students in general hygiene is done either as an elective study, or by students who come to me voluntarily for special instruction in the practical side of this work. Hitherto my plan in connection with these lectures has been to let the students ask me questions at stated periods during the session upon subjects on which I have lectured, and which may not have been made clear to them. I have not fully decided as yet what plan I shall adopt, for the present year, with regard to the grading of the students in this branch, but, if I am not mistaken, the rules of the school require a final examination for men coming up in their senior year, and it may be that in general hygiene a final examination will be necessary, though I say frankly I should much prefer to judge their qualifications by oft-repeated recitations.

PATHOLOGY.

BY SIMON FLEXNER, M.D.,

Professor of Pathology.

THE courses offered to the undergraduates in Pathology this session comprise work extending over the second, third, and fourth years of the medical course.

The second-year class receives lectures on general and special Pathology, and is taken into the Histological Laboratory throughout the entire scholastic year. The work of this year has been so planned as to bring the lectures and the practical course into intimate relationship. As far as possible

the work in the Histological Laboratory is anticipated in the formal lectures, and I may say that, for the most part, it has been possible to carry out the plan of this anticipation. Where this has not, however, been accomplished, the subjects are treated of in such close succession that the topics under consideration by the students are practically the same in the laboratory and in the lectures at any given period,—in other words, an entirely new topic is not taken up in either course while an older one is still under consideration. It is believed that such a system of concentration of work is best adapted to the abilities of even the best students, and that it is necessary, in order to elicit the interest of the average and poorer students and to enable them to make the greatest possible progress in the subject. While this method is, perhaps, somewhat experimental in respect to its outcome, yet from present indications it would seem as if all the important phases of pathology are capable of presentation in this way. In the course of the second-year work the students are encouraged not only to supplement the lectures and the practical work by text-book study, but also to read longer and more exhaustive articles to be found in the several excellent systems of medicine which have recently appeared, or are still appearing, and they are also referred to original articles on the subjects treated. In order to accomplish this, it has been found necessary to supply in the general University library books, periodicals, and pamphlets to which the students can have easy access, and also to provide a convenient place for the storing of these books, so that no unnecessary delays need be experienced by the students in obtaining in their spare minutes or hours the desired volumes. Through the courtesy of the librarian, Dr. Jastrow, the Pepper alcove will be devoted entirely to medical works, and the students in medicine will have the privilege of taking from the shelves books of reference placed in this alcove for their use.

A series of conferences has been instituted for this class. These exercises will for the present be held on Saturday mornings after the formal lecture. The time devoted to them varies from three-quarters of an hour to one hour, as determined by the subject under consideration. Their object is not so much directly to quiz the students as to discover, by questions asked and the answers attempted or given, what the difficulties are that they may experience in getting a clear, concise, and sufficient grasp of the topic under study. From the few weeks that this method has been followed, the opinion may be ventured that the class finds the innovation advantageous. The exercises are quite informal, so that the students may be quite free from that embarrassment that is so often destructive to the best purposes of the quiz. There is no spirit of rivalry, in that questions are not passed around from one student to another, but when difficulties are unearthed they are immediately cleared up as far as possible for the benefit of the student answering as well as for the body of the class in general.

The work of the third year comprises talks and demonstrations in gross

morbid anatomy. Owing to the changes in the curriculum of this year the third-year class will not have received so systematic a course of lectures in pathological anatomy as the second-year class of this year and the third-year class of previous years were given. It has been considered inadvisable to require the third-year students to take the same lectures with the second-year students, in that they could not for obvious reasons be at the same time given the privileges of the laboratory instruction; but in order that they should not suffer for such regular instruction in pathology as they naturally should have, the demonstration course has been made somewhat more formal than it would otherwise have been. The subjects which are discussed in the demonstrative course are determined by the material at hand for any given demonstration, and this material is largely fresh, and only in small part derived from the permanent pathologico-anatomical museum of the Pathological Department. It is believed that the subject can be treated of with sufficient fulness by this method to fully satisfy all ordinary requirements. The examination which will be held at the end of the third year will be upon the subjects taught in this course, and it is the intention that this examination shall be partly of a written and theoretical character, and in part practical in nature, in that fresh and preserved gross specimens will be assigned for description and diagnosis.

The work of the fourth year is limited to the teaching of practical autopsy technique. No other systematic instruction in pathology is given to this class. On the other hand, a group of ten students has availed itself of the opportunities offered by the so-called elective in pathology. A special room has been fitted up for their reception, where they are given permanent places, supplied with all needed apparatus and reagents, and permitted to come and go at will during the day, in order that special topics may be worked out. For the present each student has been given an independent problem. These problems are derived from special pathological conditions and autopy cases. A student receives the crude material, prepares it, sections it, and stains it in various ways depending upon its nature, while at the same time he is guided in a course of reading determined by the nature of the material with which he works. The instruction in this course will be unsystematic and irregular, and will aim to establish the independence of the student rather than to support him in a dependent attitude. It is expected that only the zealous will continue interested in the work, and it is desired that only such as feel keen interest in it shall persevere through the term. It is worth while mentioning that a much larger number of applicants volunteered for this course than could be accommodated, and moreover that there was no difficulty experienced in having the chosen students supply their own microscopes with which to work. It is too early to speak confidently of the results of this experiment, but the indications are that the advanced students will be able to complete the topics assigned them, and will not, for the most part, lack interest in carrying them out to

a solution. It is believed that if proper facilities could be afforded, such a course as this would appeal to graduates in medicine, and practitioners in this country who are looking for opportunities for doing semi-independent pathological work. The only drawback that may be experienced in this work will, it is feared, be the result of the limited library facilities at the command of the students. They are too far from the College of Physicians to be able in their odd moments to do the necessary reading along their special lines of work in the library of that body, and they are, therefore, compelled to rely upon the University library, and such private collections of books to which they may have access. I have endeavored, by enlisting the co-operation of the various laboratories in pathology in this country and some abroad, to obtain sets of books for the library shelves, but, of course, this means will provide only a very imperfect collection of monographs. It is highly desirable that some means shall be found by which the usefulness of the University library to students in medicine can be extended, and it has seemed to me that this extension might be a proper field of operation for the Alumni Association of the University. I throw this out as a hint, and should be highly pleased if those alumni who are interested in the University's welfare, and the Medical School in particular, would undertake a propaganda for providing a collection of medical books that would put the library on a firm footing in this particular.

APPLIED ANATOMY.

BY GWILYM G. DAVIS, M.D.,

Assistant Professor of Applied Anatomy.

THE teaching of Applied Anatomy in the medical institutions in this country has hardly received the attention which the importance of the subject demands. France has led the way, closely followed by Germany and England. That the necessity exists for a teacher midway between the practising physician and surgeon on the one hand and the scientific anatomist on the other has long been recognized, but too often the course has been simply one of descriptive anatomy of the various regions of the body, and called by courtesy regional or topographical anatomy, or else has consisted largely of systematic anatomy, with a modicum of surgery mixed in to give an excuse for its name of Surgical Anatomy. In many minds this narrow idea of the subject still seems to be firmly fixed, but the times are ripe for a change. The anatomist teaches anatomy, the surgeon and physician teach their respective branches, and they have neither the time nor the facilities to teach Applied Anatomy. The main object of teaching applied anatomy is to train the student to utilize the systematic anatomy he has acquired in his first two years in explaining the facts and phenomena of medicine and

surgery. It is to teach him to think and enable him to draw conclusions which he can make use of in his daily practice. The course as taught in the University is broad. The use of anatomy is shown in explaining physiological and pathological processes. It is studied from a constructive standpoint, so that the mechanism of fractures and displacements from injuries becomes clear, and the proper remedial procedures at once evident. It also enables the student in medical diseases to understand the significance of certain symptoms and why they occur, and if he undertakes a surgical operation it teaches him how to achieve his object with the least injury to the structures involved.

The various medical and surgical affections are taken up and elucidated from an anatomical stand-point. The greatest stress is laid on teaching by the eye. The course being a demonstrative one, special preparations and dissections are made to show all important points. These are supplemented by models, charts, and free-hand drawings as best fulfils the purpose. As the demonstration proceeds explanations are made, and points of interest and importance called attention to. When the preparations are too small to be seen at a distance, they are passed around the class. To enable the demonstrations to be still more effective, the class has been reduced in size by dividing it into sections.

The course recalls to the student his previously studied systematic anatomy, fixes it in his mind by showing its practical application, and enables him to understand and intelligently follow his teachers in the practical branches of medicine and surgery.

MATERIA MEDICA, PHARMACY, AND GENERAL THERAPEUTICS.

BY H. C. WOOD, M.D.,

Professor of Materia Medica, Pharmacy, and General Therapeutics.

THE teaching of materia medica, pharmacy, and therapeutics in the University is, in its general scope, much as it has been for some years past. The course during the first year of the student's tutelage consists of, first, instruction in Materia Medica, each man being furnished before the lecture with specimens of the drugs to be studied, so that he can follow the lecturer with the specimen in hand; second, laboratory work in Pharmacy, which is so directed as to give the student an understanding of the ordinary pharmaceutical processes, of the nature and character of the incompatibilities of drugs, and of the art of combining drugs for practical bedside use.

The teaching in Therapeutics is by means of didactic lectures by the professor, during the third year; aided by a demonstrative course upon Pharmacodynamics; the purport of the pharmacodynamic course being to

give the student a clear understanding of the principles which underlie the methods of the physiological study of drugs, as well as of the way in which the drugs act physiologically. The two courses are so correlated that the student shall have instruction in the Pharmacodynamic Laboratory in each subject before such subject shall have been gone over by the professor in the lecture.

The pharmacodynamic course consists of demonstrations on the lower animals (which are always fully anesthetized), of the action of drugs on the different organs of the body, in order. The experiments on the lower animals are accompanied with explanations of the reasoning by which conclusions are reached regarding the properties of the drug. For the purpose of demonstrating the physiological effect of the different drug-groups choice is always given to those drugs which are most commonly used in practice; so that the student, at the same time that he learns something of the method of investigation, has impressed upon his mind the physiological action of the more important remedies.

DERMATOLOGY.

BY L. A. DUHRING, M.D.,

Professor of Skin Diseases.

THE subject is divided into didactic and clinical teaching about equally as to number of hours. First, as to didactic lectures. These are given once a week in Medical Hall (from October 1 to February 1), and are profusely illustrated by colored drawings, photographs, and wax models. The subject-matter is treated systematically, with special reference to the commoner diseases. The object of the lectures is to familiarize the student with the diseases the general practitioner is likely to have under his care. The rarer diseases are referred to and illustrated, their salient clinical features only being dwelt upon; special attention is devoted to making plain which manifestations are syphilitic and non-syphilitic. The teaching is eminently practical, and devoid of all unnecessary technicality. The lectures are extemporaneous in character and delivery.

The University is rich in its collections of colored drawings, photographs, and models, which enables the student, when these are systematically grouped, to study the subject most advantageously.

The clinical instruction is given once weekly (likewise from October 1 to February 1). From five to ten cases are presented to the class for inspection, practical remarks being made concerning the diagnosis and treatment. The students are permitted to examine most of the cases at close hand, whereby they have the opportunity of not only observing the lesions, but also of cultivating the sense of touch. Above all, the student is taught to familiarize himself with the lesions and their distribution, so that what

he sees before him is fixed in the mind as a picture, to which is attached by the lecturer a label with the diagnosis. That this method of instruction is satisfactory is shown by the ease with which the students soon learn to recognize the commoner diseases. One criticism, which lecturer and student might both justly make, is that too few hours are, by the curriculum, devoted to the subject. The field of study is large, and the hours devoted to this important branch of medicine comparatively few. With more time for the subject the student would find cutaneous diseases by no means difficult to comprehend. That the student finds the study of these diseases interesting is proved by the statement that a large percentage of the entire class generally elect this branch as their "elective study," which enables them to attend the dispensary service of the University Hospital twice weekly in addition to the regular clinic.

OPHTHALMOLOGY.

BY WILLIAM F. NORRIS, M.D.,

Professor of Ophthalmology.

THE course in Ophthalmology consists of one clinical and one didactic lecture each week. In the latter, special pains are taken to present the subject simply and distinctly, so as to be of use to the general practitioner. The didactic lectures are freely illustrated by paintings and diagrams, and seven lectures are devoted to the study of the anatomy and ophthalmoscopic appearances of healthy and diseased eye-grounds, illustrated by the use of the lantern and lime light. The Eye Department has two wards in the hospital, with fifteen beds, and with these and a large dispensary service (1700 new cases yearly) all the more important operations and diseases are amply illustrated. The elective course in ophthalmology is one of the most important changes of late years. All students taking part in it have ample opportunity to become skilful in the use of the ophthalmoscope, and to study for themselves many diseased and normal eyes. The diagnosis and treatment of the inflammatory diseases of the eyes are well illustrated by the numerous cases attending the dispensary service.

GYNECOLOGY.

BY JOHN G. CLARK, M.D.,

Professor of Gynecology.

THE essential points to be dwelt upon in the instruction of undergraduate students in Gynecology are (*a*) methods of diagnosis and (*b*) indications for treatment.

The great majority of medical graduates will only do a minimum amount of gynecology in the course of general practice, for it is only those men who elect this special branch of surgery after graduation and hospital internship, or those who fit themselves for its proper execution through careful post-graduate study and work in some large clinic, who will be called upon to perform the major operations.

Clinical material should therefore be utilized, as far as possible, for teaching diagnosis and indications for operation, with a view to completing a symmetrical medical education, and thus prepare the graduate to become a good general practitioner.

I.

DIVISION OF INSTRUCTION.

Lantern Demonstrations.—While the simple didactic course in gynecology, as usually given in the past, may, perhaps, with justice be considered obsolete, it still may be made with the addition of illustrative lantern projections an impressive means of instruction, when given in conjunction with a course devoted to gynecological diagnosis and with the practical work of the operating room. These projections should consist of pictures from gross and microscopical specimens in embryology, anatomy, and pathology. This method of instruction may further be supplemented, from time to time, by the exhibition of gross specimens and diagrammatic charts. The same objective illustration of methods of diagnosis and of steps in operation may also be employed to great advantage.

II.

GYNECOLOGICAL DIAGNOSIS.

The class has been divided into small sections, so that those students who do not have an opportunity to make an examination at each meeting may profit by the oral instructions and quizzing to which the examining student is subjected. In this course the histories of patients are studied closely, and the reasons for the proposed line of treatment clearly stated.

III.

PATHOLOGICAL ANATOMY.

A course in gynecological pathology will be given, special stress being laid upon the microscopic appearance of the endometrium under normal and diseased conditions, with a view to teaching the student the vital importance of the early recognition of malignant changes, while there is still a possibility of instituting curative treatment.

IV.

GYNECOLOGICAL CLINIC.

These clinics are attended by small sections, from which a given number of students are selected each week to serve as extraordinary assistants

for making frozen sections for immediate diagnosis, preparing cover-slips and taking cultures for bacteriological examination, and in assisting in operations as far as is compatible with the patient's safety.

The principles of technique are taught by close criticism of the assistants and personal attention to the details of their work. After each operation those who are serving as extraordinary assistants are quizzed over the work of the day, and are asked to follow the course of each case subject to the supervision of the resident in charge of the gynecological ward.

V.

GENERAL PATHOLOGICAL WORK.

A special laboratory has been set aside for the Gynecological Department, where systematic records may be kept and the routine examination for the clinic conducted. This laboratory is accessible to a limited number of undergraduates or post-graduate students, who may desire to extend their knowledge in this special line of pathology or who elect some theme for investigation. All work to be subject to the approval of the professor of Pathology.

By following this course, with such modifications in time and details as are deemed necessary to make it harmonize with the roster of other departments, the student will have been taught the broad general principles of this branch of surgery, which will enable him to deal judiciously with the gynecological cases met with in his general practice, or will serve as a foundation for further study in case he elects gynecology as a special work after his graduation.

Note.—Upon assuming the duties of the chair of Gynecology I found that the clinical roster and hours for lectures had already been arranged; through the courtesy of the Faculty, however, I was able to substitute for the large general clinic, which had previously been given on Wednesday, the lantern demonstration course, which is attended by all of the fourth-year students.

Instead of conducting the ward classes simply as a course in diagnosis, I considered it better policy to concentrate all of the clinical work of the wards in the hours allotted for these classes.

The fourth-year class has been divided into four sections, and these sections further subdivided into groups of six or eight men, who are invited into the amphitheatre in succession each clinic day, and are given all of the privileges that are possible in the way of examinations, assisting in minor operations, and conducting other details in the operative work.

In order to give the class the best possible substitute for the course in the special pathology, arrangements have been made for the demonstration during each clinic of microscopic sections, which bear upon the case, before the students at that time. Thus in a case of suspected carcinoma of the uterus, specimens of the endometrium in various diseased conditions will be

shown, in order to demonstrate the practical as well as the scientific correlation between pathology and practical gynecology.

This concentration of the course in pathology and diagnosis, as far as possible, in the hours devoted to the clinical work, has, so far, proved very satisfactory, and it may be possible to continue this method of teaching.

OBSTETRICS.

BY B. C. HIRST, M.D.,

Professor of Obstetrics.

THE instruction in Obstetrics in the Department of Medicine consists of two lectures a week to members of the third-year class, which are practically demonstrations illustrated in the fullest possible manner with drawings, models, and everything that could possibly appeal to the eye. The members of the third-year class are also assigned to cases in the University Maternity, which they examine carefully under the superintendence of an instructor, visit regularly until their confinement, attend in labor, and visit afterwards until the woman and her baby leave the hospital.

The members of the fourth-year class have a clinical demonstration once a week, at which the graver and more interesting operations incidental to obstetrical practice are presented, such as operations for extra-uterine pregnancy, sections for puerperal sepsis, primary repair of extensive injuries, and Cesarean section. Small sections of the class, ten in number, meet in the hospital once a week, and are shown all the interesting material in the wards. They examine the patients about to leave, and perform often the easier operations for the primary repair of injuries, besides doing other routine work which may present itself, and which they are capable of performing.

Changing twice a week, two members of the fourth-year class are on duty at the Southeastern Dispensary, where they see from one to three confinements a day.

The fourth-year class is divided into sections for practice on the manikin. Each section is subdivided into five subsections, for each of which a French manikin and an instructor are provided. Each section has a six weeks' course of instruction. Every student is thus thoroughly drilled in the use of the forceps, in version, in extraction of the after-coming head, in embryotomy, and in the recognition of presentations and positions. Fetal cadavera are used in the manikins. As a part of their final examinations the members of the graduating class hand in a detailed report of the cases attended in labor during the third and fourth years.

SURGERY.

BY J. WILLIAM WHITE, M D.,

Professor of Clinical Surgery.

I AM very glad to present to this meeting of Pennsylvania graduates a synopsis of the present condition of surgical teaching at the University, and I have written it out, so that through the UNIVERSITY MEDICAL MAGAZINE it may reach a still larger number of our alumni, all of whom have a right to be kept informed as to the methods and purposes of their alma mater.

The foundation for the surgical training is, of course, laid in the first year by the lectures on general anatomy, the dissecting and the demonstrations in anatomy, osteology, and syndesmology, and in elementary bandaging. The latter course is put in this year so that students who may have an opportunity to serve as dressers in dispensaries during the summer following may be able to take advantage of it. In the second year the general anatomy and dissecting are continued, and instruction in bacteriology and pathology is begun, directing the attention of the students towards variations from the normal conditions that they have become familiar with.

About all this, however, you will, at some later meeting, hear more in detail from those directly concerned in the teaching of these two years.

In the third year the students definitely begin the study of surgery, the foundation already laid being at the same time broadened by demonstrations in applied anatomy, showing them not didactically, but practically, the relation which the anatomy which they have been studying for two years has to injury and disease.

They now listen to a didactic course of thirty lectures on general surgery; the intention being to give them an outline or skeleton of the subject to be filled in from clinics and text-books and by the teaching of minor instructors.

The effort is made to render this course as practical as it is possible to make didactic teaching, to avoid historical and statistical matter, and to leave them with a clear idea of the salient points of the chief surgical conditions met with in practice. The whole third-year class attends these lectures, and also the general surgical clinic held once a week in the hospital, where they see, as a rule, major operations and cases of the severer type.

At the same time the class is divided into three sections, and the year into three periods of ten weeks each. Each section thus has an hour a week in attendance upon the surgical ward classes. There they in turn administer anesthetics under the supervision of an instructor, keep a record of the cases, and have an opportunity to see and hear a great deal about diag-

nosis and treatment during the examination of patients, which is conducted by a member of the fourth-year class in consultation with the teacher. The didactic lecture, the general clinic, and two of the ward classes are given at present by the professor of Clinical Surgery, the third ward class by his assistants in rotation. In addition, each section is given an hour a week for each period for further instruction in minor surgery and surgical technique. Three weeks are spent by subsections of fifteen men each in the Surgical Dispensary, where they do the routine work of the dispensary. The balance of the period they are instructed (1) in the use and application of the chief appliances employed in fractures and in joint-diseases; (2) in the making and application of plaster of Paris and silicate of soda dressings; (3) in the strapping of joints; (4) in the technique of catheterization, permanent and intermittent, and in the care and sterilization of catheters; (5) in the technique of intravenous saline infusions and hypodermoclysis, in local anesthesia, and in the administration of hypodermics; (6) in the methods of controlling hemorrhage, the various tourniquets, the Paquelin cautery, etc., and (7) in the application of heat, cold, and irrigation, and in skin-grafting.

An hour a week is also devoted in the hospital to examinations (illustrated by patients when possible) of the subjects gone over in the general clinics, in the didactic course, and in the ward classes. I regard this as extremely valuable, as furnishing desirable evidence of the effectiveness of the course, putting the instructors into closer touch with the students, and affording the incumbent of the principal surgical chair a chance to revise and to try to improve his methods if he finds that the class is not *learning surgery*.

Another hour in this year is given to a systematic course in Medical Hall by the demonstrator, which includes minor surgery with splints, bandaging, etc. For half the year the class attends, during still another hour, a course of lectures on surgical diagnosis, intended to round out and supplement the general clinical and didactic courses, and for the remaining half a course on surgical pathology one hour a week, which includes demonstrations of microscopical and macroscopical specimens whenever it is possible to obtain material for the subject under discussion.

The student should thus come to his fourth and final year well prepared to reap the fullest advantages from whatever clinical facilities may be given him.

He has for half of this year a course of lectures on operative surgery, and for the other half practice and demonstrations on the same subject. He has some hours devoted to skiagraphy, to familiarizing him with the names of instruments and the mechanical principles involved in their construction and use, to surgical sterilization, and to a number of other subjects, knowledge of which is necessary to make him fit to practise surgery well and safely. But the year is otherwise an exclusively clinical one. He ex-

amines cases, takes histories, gives his views and his reasons for them as to the patients at the ward classes, helps at operations, and is brought in every way possible in close personal relation to surgical injury and disease. He also has once a week a clinical conference, and a review of his previous work, which is of the same assistance both to him and to the professor as in the third year.

In all our teaching we try to emphasize the fact that surgical diagnosis is regarded simply as the rational interpretation of data gained by examination. Our students are taught that superhumanly keen special senses and a hyperacute brain are of minor importance to the diagnostician as compared to an accurate knowledge of anatomy and pathology, system and thoroughness in examination, and sound common sense. They are taught to distrust intuition, and to place their reliance upon logical deduction. It therefore follows that memorizing the symptoms of each injury or disease is discouraged. In place of this the essential or cardinal symptoms of disease groups are impressed upon them, and they are trained to apply this knowledge to the interpretation of special cases. The effort is made to give them a few working formulæ rather than many isolated facts, the usefulness of which depends on memory rather than on reason. We believe that most time and attention should be devoted to the commoner surgical diseases and those which the general practitioner can reasonably be expected to diagnose, holding, for instance, that it is infinitely more important that our young men should recognize fractures, hernias, tumors, luxations, and intra-abdominal obstructions and inflammations than that they should be drilled on the obscure and often misleading symptoms which characterize mediastinal tumors or hydatid cysts.

As to treatment, the same general rules prevail. We try to inculcate principles rather than formulæ, and to suggest a common-sense view of the management of cases which will make the practitioner a safe guide for the average surgical patient.

It is obviously difficult for me to estimate accurately the exact practical value of this course. In some important respects this is the first session in which it has been tried. In others, however, it has what I believe to be my well-merited confidence, based upon the favorable and often enthusiastic approval of successive generations of students.

I am pleased to submit it to you as a whole for your consideration, and shall gladly welcome now or later any friendly criticism, however severe or unfavorable, if it contains practical suggestions for improvement.

CLINICAL MEDICINE.

BY ALFRED STENGEL, M.D.,

Professor of Clinical Medicine.

THE progress of medicine in the last decade or two has been so rapid that its teaching has become a very complicated and difficult matter. Institutions are useful and of high standing in proportion as they have adapted themselves to the growing needs of the science and art which they undertake to impress upon students. Alumni of the institution are apt to go back in their memories to the methods prevailing at the time of their studentship until, by actual visit to their alma mater, they are impressed with the changes that time has made necessary. Naturally, with a widely scattered body of alumni, a very great proportion of whom never revisit the institution from which they have taken their diplomas, the progress in the Medical Department of the University of Pennsylvania is in danger of not being appreciated by those who should be most familiar with it. In our contact with graduates of some years' standing, who have long been at a distance from their alma mater, we find the impression has prevailed that the conditions of teaching remain much the same as during their student days, while their newer and fresher relations with other institutions have given them the idea that these follow better and more modern plans of instruction. A review of the methods of teaching in one of the departments will therefore be of direct benefit to our own graduates.

In the sixties and the seventies, and even in the eighties, the alumni will recall that the teaching in the Department of Medicine and Clinical Medicine was conducted by one, two, or three professors or instructors. The entire class or classes were assembled in the large lecture-rooms or clinical halls, and the professor delivered a set lecture of a didactic kind; undoubtedly, often useful, because it represented the thought of an ardent teacher, and was delivered with earnestness and enthusiasm, but still didactic in every sense of the word. Clinical lectures were delivered in the various hospitals of the city, but the student had little opportunity to grow familiar with methods of clinical examination. In the latter eighties and in the early nineties, the method of ward class instruction was developed, and this has reached its highest perfection at the present time. The classes were divided into subsections, and these were brought into somewhat more intimate relations with the patient as well as with the professor or instructor. From a total of two or three, the teaching staff in this one portion of the Medical Department has grown to three professors and twenty-two instructors, and the teaching of clinical medicine is spread over three years,—the second, third, and fourth. It comprehends not alone the old-time didactic lecture

and large clinic, but clinical conferences which may be described as small clinics in which the student takes a large part, and ward classes at the bedside, as well as classes in the clinical laboratory and in the dispensary laboratory. During the second year the student receives lectures, one day in the week, on physical diagnosis, and at the present time these embrace, not alone a consideration of the physical signs of disease, but a discussion of the general physics involved in the normal and abnormal sounds produced in the lungs or heart in health or disease,—in other words, the subject is considered from a more scientific stand-point than that which has been customary even in the recent past. At the same time the second-year student is assigned to practical work in physical diagnosis during a portion of the year, receiving one hour per week under the guidance of the lecturer in Physical Diagnosis or one of the instructors in this branch. It is intended that the student should learn only the normal conditions during this year, as the variations cannot be appreciated until a thorough mastery has been obtained over the physical signs discoverable in health. During the same year, and as a part of their course in clinical medicine, the students receive laboratory instruction in the clinical examinations of the urine and other excretions. This course is conducted in a special laboratory, which has recently been equipped for the purpose in the University Hospital, and it is hoped that, in the near future, a special building may be erected as a laboratory of clinical medicine for undergraduates, as the Pepper Laboratory is one for post-graduates.

In the third year the class is divided into three sections, and these into subsections of from six to ten men, and under the guidance of twelve instructors, ward-class courses, laboratory instruction, and history-taking are given. Each subsection of the class has one hour per week in ward classes throughout the entire year, and one hour per week during part of the year in clinical laboratory work. This is a continuation of that of the second year, with more immediate reference to the patients in the hospital. During a portion of the year the students are, in rotation, assigned to the Laryngological or Medical Dispensaries, and each student of the class receives at least four or five hours in each of these departments. The teaching in the Laryngological Dispensary consists of instruction in the use of the laryngoscope and of instruments for examining the ears and nasal chamber; while in the Medical Dispensary, systematic instruction is given in the proper manner of taking histories, of writing prescriptions, and a part of the time is devoted to further work in the laboratory attached to the dispensaries.

During the fourth year the teaching of clinical medicine consists of ward classes, laboratory work, clinical conferences, clinics, and personal visits to the medical wards. The ward classes are conducted as in the third year, but with reference to the greater advancement of the students. Each student has one ward class per week throughout the entire year. The clinical conferences are, as has been said, small clinics in which the students

take active part. The class is divided into four sections of forty-five or fifty men each, and each of these sections is assigned to one or the other of the professors of clinical medicine. Cases in the wards are assigned to the students, and other students are required to report upon certain features of the cases to be exhibited at the clinical conferences. Others are called to the bedside at the time of the conference, and are asked to criticise the report or reports made by their colleagues who have examined the patients in the wards. In this way the interest of the whole body of students in the daily working of the hospital and in the care of the patients is constantly maintained, and their enthusiasm in the study of medicine is kept up by the feeling that they themselves are entering into its spirit. The laboratory instruction of the fourth year consists in short courses of five or six weeks each in the dispensary laboratory, where, under the guidance of two instructors, they are permitted to make examinations of specimens brought by the patients of the dispensary. One clinic per week is given by the professor of Medicine, which is attended by all of the students of the fourth year.

Nothing has been said of the didactic lectures, three in number, which for the present are attended by the third- and fourth-year classes. These remain the same as in the past years.

From this sketch, it will be seen that the teaching of medicine has become an enormously complicated matter, and that in the progress which recent years have brought to the better of American schools, the University of Pennsylvania has borne her part with the old-time distinction, and with fidelity to the interests of those who have enrolled themselves among her students.

Professor of Medicine.—James Tyson, M.D.

Professors of Clinical Medicine.—John H. Musser, M.D., Alfred Stengel, M.D.

Instructors in Clinical Medicine.—Judson Daland, M.D., M. Howard Fussell, M.D., Samuel M. Hamill, M.D., William H. Price, M.D., David L. Edsall, M.D., A. O. J. Kelly, M.D., Henry D. Jump, M.D., John D. Steele, M.D., William S. Dougherty, M.D., Cortland Y. White, M.D., Joseph Walsh, M.D., J. A. Scott, M.D.

Assistant Instructors in Clinical Medicine.—William Pepper, M.D., W. G. Elmer, M.D.

Lecturer on Physical Diagnosis.—A. A. Stevens, M.D.

Instructors in Physical Diagnosis.—Herman B. Allyn, M.D., Frank S. Pearce, M.D., B. F. Stahl, M.D., A. A. Stevens, M.D.

Instructors in Laryngology.—William R. Hoch, M.D., Francis R. Packard, M.D.

BY J. H. MUSSER, M.D.,

Professor of Clinical Medicine.

THE teaching of clinical medicine, other than that obtained in the collateral branches, as chemistry, anatomy, physiology, and pathology, begins in the *second year*. The students attend one lecture a week in physical diagnosis, attend upon elementary clinical laboratory instruction in sections one-half the year, and are taught methods of physical diagnosis in sections. The laboratory instruction includes clinical examinations of the urine, blood, etc., and instruction in the use of the instruments of precision required for such examinations. The physical diagnosis sections are taught the physical phenomena and appearances of health, being drilled in inspection, palpation, percussion, and auscultation of normal subjects. They are thus enabled to do the advanced work of the third year.

In the *third year* the instruction is by ward class, clinical laboratory, and clinical lecture. The students attend the general clinics. They are subdivided into sections for ward class and laboratory. In the ward class methods of recognition of the objective phenomena of disease are taught. Physical diagnosis is treated exhaustively, and students are trained in the use of instruments of precision. Sections are taught the use of the laryngoscope, and normal nasal and laryngeal conditions. Others are trained in history-taking. In the laboratory advanced work is done. Examinations of the blood (including staining, etc.), of the sputa, of the urine, the stomach contents, and of pathological fluids are conducted.

In the *fourth year* students have the advantage of the laboratory for advanced work in clinical diagnosis. An hour is set apart for them to meet one of the instructors and make urine, blood, sputa, and other examinations required in the study of the cases assigned to them in the ward class or clinical conference. They attend the regular weekly clinical lecture in a body. The class is divided into sections of not more than ten, usually less, for advanced ward class teaching. Then subjective and objective medicine are combined. The data of each are collected, analyzed, and conclusions are drawn. Prescription-writing is taught, medical operations, as hypodermic injections, exploratory punctures, aspirations, the introduction of the stomach-tube, baths, etc., are practised. The wards and the dispensary service are utilized. Cases from the dispensary are given to individual students for study, and they are expected to visit the patients at their homes, if practicable and needful. The cases are reported to the section, the members of which examine the case, discuss diagnosis, and suggest treatment, under the guidance of the instructor. The ward patients furnish bedside instruction, which is carried on not in the wards but in adjoining class-rooms. The students are expected to keep notes of every case.

The Clinical Conference.—The class is divided into four sections. Two

sections are taught on Wednesday and two on Thursday, so that throughout the year each student attends a weekly clinical conference. A patient is assigned to two students for study during the week the case is presented to the section. The members of the section take an abstract of the history given by the student in charge; they examine the patient, and criticise any defects in the original examination. The subject is discussed by the teacher and students, largely by question and answer, the teacher explaining any obscure points. At the succeeding conference, others to whom the subjects have been assigned present brief papers on the case, upon topics of special interest. Thus in a case of pleural effusion, papers on the physics of effusions, on the relation of tuberculosis to pleurisy, and on the tuberculin test were presented. Then an index-catalogue of the cases and of prominent symptoms are kept for future reference in allied conditions. Reference to recent literature is presented and an abstract of the conclusions from the papers of the more recent authors is presented. Wet and dry pathological preparations, drawings, etc., are presented to illustrate any phenomena the case may present. In the mean time the students to whom the case was assigned keep it under observation during the stay in the ward and report the progress from time to time.

From our brief experience, the conference is most successful. I exhibit here the report of a case which you observe shows a chart of the cardiac areas of dulness, sphygmographic tracings, urine examinations, blood examinations, etc.,—a thorough *résumé*. To show the interest the students take in the work, here is an original paper, which the writer went to the trouble to have type-written.

The object of the conference is not alone the acquirement of diagnosis and treatment. It is to stimulate thought. We teach them index-cataloguing in order that they may acquire the habit in their future study and reading. We assign topics for discussion, and refer to the literature to teach them methods of literary investigation. By the presentation of books, the pictures of authors, etc., we get them interested in the history of medicine.

We cannot cover the entire field of clinical medicine. We can exhaustively study principles, however; we can thoroughly drill in methods of diagnosis and in precision. We believe, moreover, we can so arouse the interest of the student as to give him a relish for knowledge, the highest end of school training, so that, when he leaves the medical halls, he continues, as each year advances, more zealously than before, to pursue his medical studies.

MEDICINE.

BY JAMES TYSON, M.D.,

Professor of Medicine.

THE subject of medicine, including the two subdivisions of Theory and Practice of Medicine and Clinical Medicine, is taught by three professors, together with some twenty assistants, known as instructors. The professor of Medicine gives three didactic lectures and one clinical lecture weekly, these duties being specifically prescribed by the Board of Trustees. The lectures and clinics from this chair are at present attended by students of the third and fourth year.

The professors of Clinical Medicine have charge of the ward classes and clinical conferences. The ward classes actually begin in the second year, with instruction in normal physical signs. They are further attended by students of the third and fourth year, the instruction being appropriately enlarged and advanced. The clinical conferences are attended by students of the fourth year only. I will leave for the professors of Clinical Medicine to describe the special methods pursued in the ward classes and clinical conferences, and will merely emphasize now that the ward class and laboratory instruction in clinical medicine is given to the third-year students at hours separate and distinct from that given to the fourth year, so that the teaching is additional and not duplicated.

It may be interesting to you to compare the instruction in medicine given to our third and fourth year students with that given in England and Scotland to the students of the fourth and fifth year, which are the years comparable to our third and fourth, and which I took some pains to investigate during the past summer. In point of fact, the students in our ward classes come closer to patients at the University than in those countries, by which I mean that we divide our classes into subsections so much smaller that the opportunity to examine cases comes to each one more frequently and systematically. The number of men accompanying the instructor in the London hospitals is so large that these visits may be regarded as little clinics in our sense of the term, at which the distant members of the circle are in much the position of the students who attend our general clinics. This is offset by the fact that every student, in the London hospitals at least, is a clinical clerk for some months, partly in the medical and partly in the surgical wards, an opportunity which, with our large classes and relatively small number of patients, is not possible to the same extent. We are, however, carrying out this method in a degree and hope to extend it. The clinical conference, as it exists with us and which will be described to you by Dr. Musser or Dr. Stengel, and which we consider as one of the most useful features of our instruction, is unknown in Great Britain so far as I can

ascertain, what is called a clinical conference at Cambridge University, for example, being more comparable to one of our general clinics.

I am glad the opportunity has been offered us of making this presentation, because I believe few of our alumni realize the extent and thoroughness of our methods in teaching medicine, especially when taken in connection with our difficulties. Visitors who come to us from other cities are unanimous in commending these methods, which have been gradually growing and maturing in the last ten years, as in some respects superior to those of any other school. No other school has so many instructors, each one of whom excels in some particular, of which the student has the advantage in the system of rotation adopted.

In England and Scotland the didactic lecture still forms an important part of the instruction, about 100 lectures being given in the academic year, and our Faculty still regard the didactic lectures, of which there is about the same number, as an important part of the teaching of medicine, for the reason that in no other way can the entire ground of medicine be covered. Bedside and clinical teaching are excellent as far as possible, and on a question between the two the bedside teaching holds the palm for impressiveness and indelibleness of effect. But its application is limited by the amount of material and the hours at the disposal of the student, and innumerable points of great importance must be overlooked or omitted, while the instruction, too, must be more or less angular and fragmentary. The didactic lecture fills in these angles, pieces the fragments, supplies the gaps, and completes the picture otherwise incomplete, while it describes those diseases which the wards do not illustrate. When properly illustrated, it may be made as impressive and interesting as a bedside demonstration, which it should not substitute, but should supplement when possible. When it is said that text-books contain the same facts, and that students can find them there, I reply that books do not contain all that the didactic lecturer of experience *should* teach. He should add to what the books contain, and impress it by suitable emphasis and demonstration. Doubtless, in turn books can supplement sufficiently illustrated didactic lectures, but they cannot substitute them.

I was much interested by a criticism of the didactic lecture, which appeared in one of our weekly medical journals, several weeks ago, written by one of our own graduates, by the way. He alluded to certain didactic lectures given at the University of acknowledged excellence, well illustrated by large and impressive diagrams and models, lectures which he himself thought admirable, but he said these were not really didactic lectures. In other words, according to his judgment, a *good* didactic lecture is not a didactic lecture, but is rather a clinical lecture, even though no patient illustrates it, while a bad didactic lecture is a didactic lecture. Certainly if only poor didactic lectures are to be regarded as didactic lectures then the sooner they are abolished the better. I acknowledge that much of the

weakness of these lectures is due to the fact that professors do not give time to their preparation and illustration, but gloss them over as a thing to be gotten rid of as soon as possible. I was informed lately in London that this was apt to be the case with the professors there, because they were all such busy men that they could not give the proper time to the subject. It takes time and study extending over years to gather suitable illustrations and models, and if there are any shortcomings of my own in this department, I must crave indulgence for a time, until I can secure the proper illustrations.

CONCERNING HYOSCINE.

By Horatio C. Wood, M.D.,

PHILADELPHIA,

Professor of Materia Medica, Pharmacy, and Therapeutics, University of Pennsylvania.

Of all branches of medicine therapeutics is the one which relies most upon the labors of those who are not students of the branch itself. Empiricism often runs ahead of scientific medicine; and the reason why the effects of remedies in certain diseases, though proven clinically, cannot be scientifically explained, more often lies at the door of the pathologist than of the pharmacologist. Quinine was acknowledged to cure malarial fever long before malarial fever was known to depend upon the presence of a protozoa. Not only was this so, but it is further true that many years ago quinine was known to be a deadly poison to very many protozoa, so that when the pathologist did his work the scientific explanation of the so-called specific influence of quinine was not far to seek. When the pathologist determines the nature of the cause of syphilis the pharmacologist will probably soon tell why syphilis is for the time being cured by mercury.

A great practical difficulty in the advance of scientific pharmacology—a hinderance to the growth of scientific practical medicine; a sweet morsel in the mouth of the mocker of rational therapeutics—is the differences of results obtained by different experimenters with substances having the same name and commonly supposed to be identical. The record of the physiological work done with rarer opium alkaloids is a chaos, utterly confounded and confounding, out of which order can only finally be brought by wiping out all that has been done, as with a wet sponge, and starting afresh. Evidently this is because the chemists have furnished to different physiologists different things under the same name; alleged alkaloids having the same title being one time one thing, another time another thing; in many cases the asserted pure opium alkaloids have probably been mixtures of varying constitution.

The alkaloid hyoscine, which I had some years ago the honor to discover the practical value of in medicine, gives, if one can believe the reports of pharmacologists and clinicians, very varying results. It is plain that the hyoscine of commerce is of varying constitution. Obtained from a group of solanaceous plants, there were originally described and put upon the market certain allied alkaloids, atropine, hyoscyamine, amorphous hyoscyamine, daturine, and duboisine. The researches of Ladenburg, extending over five years, from 1879 to 1884, led him to the definite conclusion that in this mydriatic plant-group there are only three distinct alkaloids—namely, atropine, hyoscyamine, and hyoscine, which have the same formula though

differing in molecular structure. Of these alkaloids it should be noted that atropine and hyoscyamine readily crystallize, but that hyoscine was not and never has been obtained otherwise than as a syrupy liquid. After the work of Ladenburg came the recognition of the activity of the common Bavarian solanaceous plant *Scopolia* (or *Scopola*) *carniolica;* it was soon determined to contain a mydriatic alkaloid scopolamine or scopoleine, and was thrown upon the market at so low a figure as to become the source out of which were and are improperly made many preparations sold commercially under the name of belladonna. In 1892, E. Schmidt declared that scopolamine was identical with hyoscine, and published to the world the fact that much of the commercial hyoscine hydrobromate has been prepared from the scopolia plant.

The researches of Schmidt have been received with so much of credit that the recent British Pharmacopeia defines Hyoscinæ Hydrobromidum (hyoscine hydrobromide) to be "the hydrobromide of an alkaloid contained in hyoscyamus leaves, different species of scopola, and possibly other solanaceous plants;" whilst the Committee of Revision of the German Pharmacopeia is stated to have recommended the change in the official title of "Hyoscinum Hydrobromium" to "Scopolamium Hydrobromium."

Contrary to this view, in 1896, O. Hesse found that scopolamine hydrochloride is a mixture of the salts of two alkaloids, hyoscine and atroscine. This is denied by Schmidt, but in June, 1897, Louis Merck published in the *Journal of the Society of Chemical Industry* an article which lends credence to the view of Hesse. Working with enormous quantities of the bases residuary from the manufacture of atropine, he had, of course, extraordinary opportunity to reach conclusions. These conclusions are "that his results so far have failed to show the possibility of obtaining a base possessing the properties of hyoscine and answering to Ladenburg's formula;" and that the probabilities are altogether in favor of O. Hesse's view, that "two chemically equal basic substances, which so far can be distinguished from one another only by their optical properties are contained in the scopolamine hydrobromate." This, so far as I know, is the last word upon the subject, which evidently is not completely worked out.

In the present doubt and uncertainty it does seem as though the practitioner who writes for hyoscine has the right to obtain an alkaloid prepared from hyoscyamus, concerning whose identity and physiological action there ought to be as little doubt as possible; and that Pharmacopeial recognition of the identicity of hyoscine and scopolamine is premature.

In a private letter to me, Merck & Company state that "Merck's hyoscine and its salts always have been and still are obtained from hyoscyamus." The practitioner who wishes to be sure of his results certainly ought to see that he has a hyosceine derived from hyoscyamus.

Under the circumstances, it seems to me that the differences which have been obtained by different physiologists and clinicans in the use of hyoscine

have rested upon their having different drugs. It is easy to see how differences of results may arise. The experiments of H. C. Wood and of Claussens are concordant in showing that hyoscine does not paralyze the pneumogastric nerve; whilst Rondeau, Sohrt, and Kobert, as the result of their experiments, declare that hyoscine is a vagus paralyzant. It is plain that a little contaminating atropine in any specimen of hyoscine would make it a paralyzant of the pneumogastric nerves.

LATERAL SINUS PHLEBITIS AFTER OTITIS MEDIA IN TYPHOID FEVER.

By B. Alex. Randall, M.A., M.D.,

PHILADELPHIA,

Eye and Ear Surgeon, Methodist Hospital; Clinical Professor of Ear-Diseases, University of Pennsylvania, etc.,

AND

By Jeannie S. Adams, B.S., M.D.,

Chief of Eye and Ear Clinic, Methodist Hospital; Instructor in Ear-Diseases, Philadelphia Polyclinic, etc.

A man of 26, a musician in the army, though of Canadian birth, was sent down from Camp Black as in the tenth day of typhoid fever, and admitted on October 15 to the Methodist Hospital, under the care of Dr. James Hendrie Lloyd. He had been eating poorly and feeling unfit for duty since July 11, but had no signs of typhoid clearly marked. His temperature, of 104° F. on admission, varied little except as controlled by cold packs, after spongings and baths proved inadequate, and was not below 100° —rarely below 101°—for three weeks. He was presumably in the tenth day of his typhoid, with tender abdomen, gurgling and doughiness in the iliac fossa, no splenic enlargement, and but one doubtful rose-spot; rather constipated, with a white tongue, and very flushed cheeks; respirations 26 and pulse 84, with inconstant systolic murmur at the apex. The urine contained a trace of albumin with granular casts and pus, but was good in color and quantity, although he had pain in micturition; the City Laboratory reported positive Widal reaction. He had some pain in the joints, especially the hips, on the 18th, and again complained of this about the 30th.

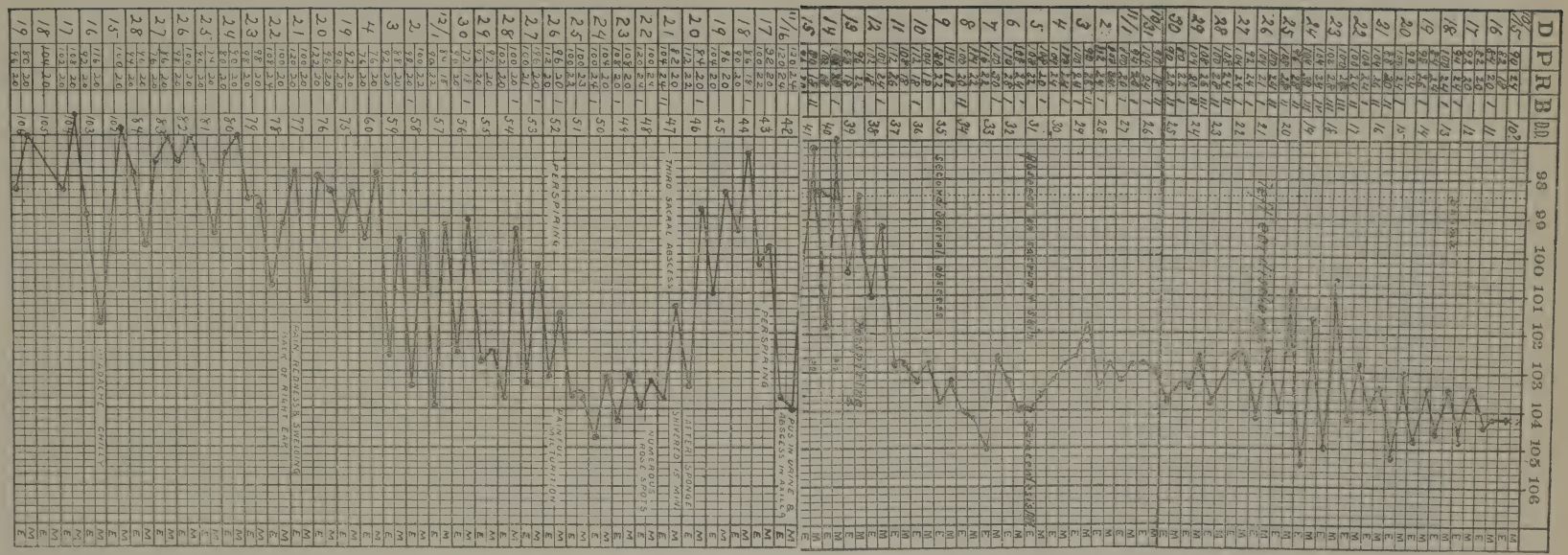
His mental condition was bad, although generally rational during the day; but he was wildly delirious at times and often fought against bathing until exhausted. On October 25 he was found to be very deaf, and on the 26th there was slight serous discharge from the left ear, later becoming puri-

form. On November 2 he refused all food, and the abdomen became distended and tender, with dry, brown tongue and pulse of 112; and next day a red spot of threatened boil was found in the left sacral region. There was no rigor or sweating, and the temperature was little varying from 103°, except when artificially reduced a degree or more.

On November 4 the ears were examined by Dr. Adams and later by Dr. Randall, the deafness continuing marked, the delirium nearly constant, and new evidences of pain appearing. The canals were found dry and clean, the drumheads posteriorly red and bulging, but normal in color and lustre in the anterior halves; and there was tenderness on pressure above the left mastoid process. No pus was believed to be present, but next day, under aseptic precautions, the membranes were incised, with escape of nothing but blood. The boil on the sacrum was evacuated, as also a small one on the left shin, and both treated with wet bichloride dressings. Another sacral collection had to be opened on the 9th; then both went on to good healing.

He was generally somnolent, but often wildly delirious, and fought against the bathing in all its forms until exhausted; it was therefore discontinued on November 11. The temperature spontaneously declined on the 12th, and reached normal on the 13th, with slight evening rise, and he began perspiring freely; on the 14th and 15th it was down to 97° F., with free sweating, but no chill. On the 16th it rose to 104°, with pulse 120, and a large quantity of pus was found in the urine with some granular and hyaline casts, without notable bladder symptoms. An abscess was also found in the axilla, and a half-ounce of pus evacuated by incision: prompt healing under wet bichloride dressings. There was prompt fall of temperature, reaching 97$\frac{2}{5}$° on the 17th, but it then climbed rapidly to 103$\frac{2}{5}$° on the 20th, and he shivered for fifteen minutes after a cold sponging. Continued high temperature followed for four days with a profuse crop of rose-spots, marked delirium, and some difficulty in micturition, and he fought the sponging so desperately that it had to be withheld. He complained of sore throat on the 25th, but it was soon better, and on the 26th his temperature fell to 101$\frac{3}{5}$°, and he perspired freely. On the 29th he was much quieter, with natural movements, new rose-spots, and the temperature fell sharply to 99$\frac{2}{5}$° after a free sweat; and after several days of erratic course it came down to 98° on December 4, and ranged little from normal during the next two weeks.

After several days of normal temperature there was a slight rise on the 20th, and next day 101$\frac{3}{5}$° without rigor, but with marked pain, redness and tenderness over the back of the right mastoid, and edema of this and the adjacent posterior cervical region. There was no tenderness nor induration along the jugular, the eye-ground was undisturbed, and the tongue and skin were in good condition. Expectancy was advised and justified by the speedy remission of all symptoms, which disappeared on the 23d. Steady convalescence followed, interrupted only by a rise of temperature of the same height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on January 16, with chilliness, headache and slight backache, with normal urine, and no further indication of trouble. He was discharged well on January 31.

After nearly three months of malaise, this patient had unmistakable, if not typical, typhoid fever, with middle-ear inflammation, never purulent on the right, although reported puriform at times on the left. He had several superficial furuncular abscesses over the sacrum and shin, but no rigors, sweating, nor notable variations of temperature to indicate septicemia. There was a crisis about the thirty-sixth day, broken by a sharp fever, and abscess in the axilla and pus in the urine. After remission he had a typhoid relapse about the forty-sixth day, lasting two weeks, with delirium, rose-spots and pyrexia beginning with the only approach to a rigor seen in the whole case. After seeming convalescent for two weeks he had clear signs of an inflammation of the lateral sinus on the right side, where the ear had never given a sign of purulency, disappearing without operation in three days, and followed by steady advance to full recovery. All septic symptoms in the case have been mentioned more fully than their seeming importance justified, and may seem more in the recital than they did at the time; but the man never seemed really septic, although his condition was much of the time very disquieting, least so in the fortnight preceding his sinus phlebitis. Such an involvement is less readily explained than a "milk leg," but its pathology may be identical. [While this was in press, a boy of 8, at the Children's Hospital, with typhoid fever and bilateral otorrhea, has had a very similar attack, but with longer continued post-mastoid swelling, some lymphatic adenitis there, and more erratic pulse. He seems also spontaneously recovering.—B. A. R.]

A CASE OF TYPHOID FEVER WITH CONCURRENT MALARIA.[1]

[FROM THE DEPARTMENT OF CLINICAL MEDICINE, UNIVERSITY OF PENNSYLVANIA.]

By J. Dutton Steele, M.D.,

PHILADELPHIA,

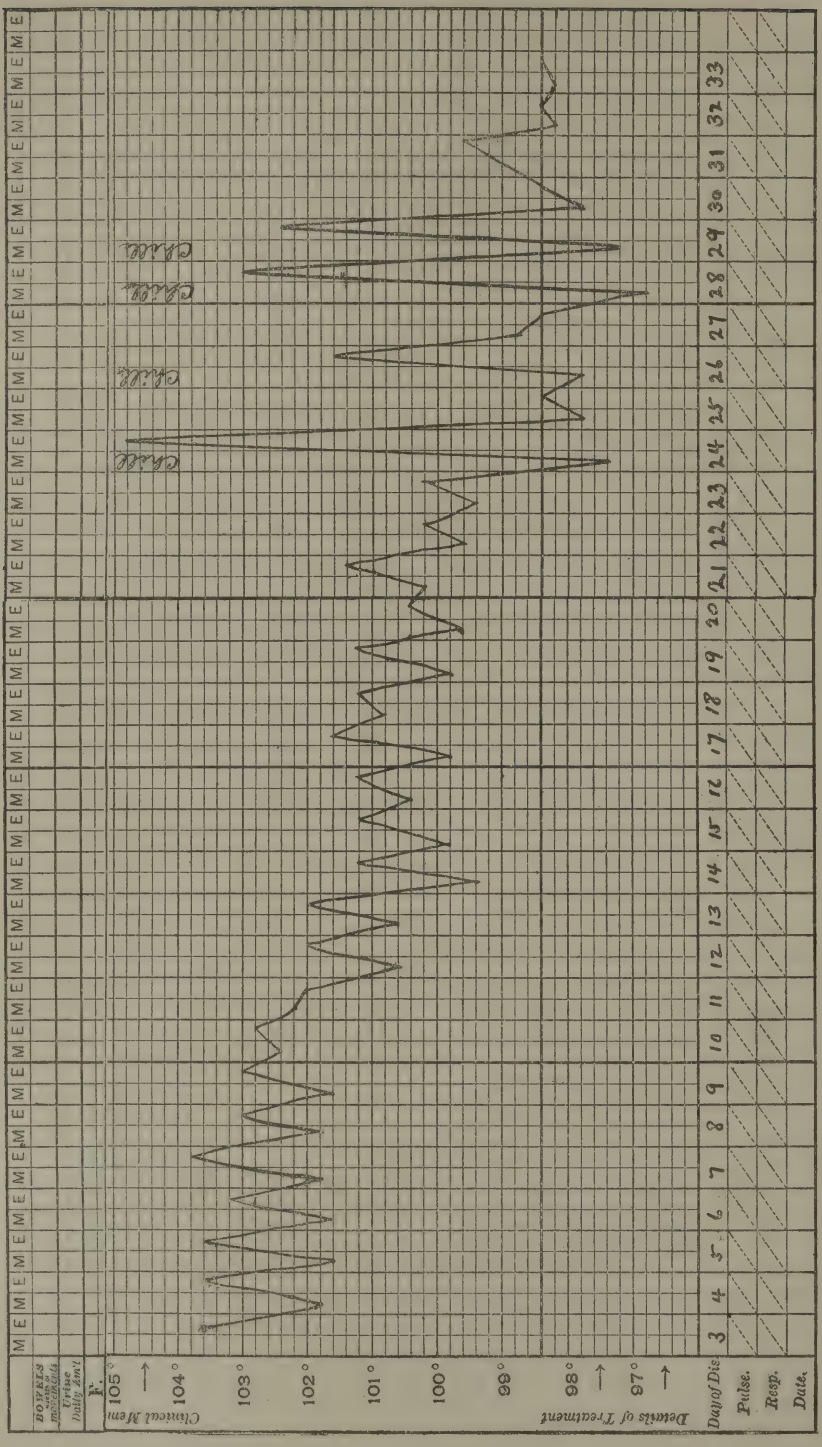
Instructor in Clinical Medicine.

The following case is reported as a contribution to the subject of the simultaneous appearance of typhoid fever and malaria in the same individual.

R. W., male, white, aged 23 years, and a native of Pennsylvania, has been employed in a bank in Philadelphia for some years past. He had never had malaria or typhoid fever previously, and has not been away from Philadelphia for at least a year. He came under observation on September 27, 1899. He gave a history of headache, constipation, epistaxis, and general weakness for about seven days previously. He had had no chills and felt well up the date mentioned. Large doses of quinine were given in the first two days of treatment, and were then discontinued. The pulse ranged from 90 to 110 to the minute.

When first examined there was very moderate splenic enlargement and a continuous fever of 102° to 103° F. The heart and lungs were healthy. There was slight tenderness on the right iliac fossa, considerable abdominal pain, and moderate distention. Upon October 2, the urine gave a positive diazo-reaction, and the blood in a dilution of 1 to 20 gave a positive Widal reaction in five minutes. The serum test was obtained by diluting the fresh blood with sterile water, and adding a twenty-four-hour-old agar culture of the typhoid bacillus directly to the solution. Rose-spots were abundant upon the same date, and the spleen was slightly more enlarged. The abdominal tenderness and distention gradually disappeared, and the case ran an uneventful course, with a slowly falling temperature. The diazo-reaction was negative upon the nineteenth day, and remained so thereafter. Upon October 14, the eighteenth day, the patient was kept awake through the night by the presence in his room of several mosquitoes that bit him repeatedly. Unfortunately, the species of the insects was not determined. As shown by the chart upon the evening of the twenty-fourth day, the temperature was $100\frac{1}{5}°$ F. During the night it fell abruptly to $97\frac{2}{5}°$. This fall was followed directly by a chill, which lasted fifteen minutes. The tem-

[1] Read before the Section on General Medicine of the College of Physicians of Philadelphia, November 13, 1899.


Clinical Mem.
Deaths of Treatment
Days of Dis.
Pulse.
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Date.
Urine
Daily Amt.
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105°
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3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
Chill
Chill
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Chill

perature rose during the chill to 104⅘°, and then fell to normal with much sweating. The blood was examined in fresh and stained preparations, with the discovery of pigmented leucocytes, but no malarial organisms. A thorough examination was made to exclude the possibility of complications, septic or otherwise. Nothing whatever was discovered. The spleen, however, was found to be considerably larger than it had been a few days previously. The blood was tested for the Widal reaction, and it was again positive in five minutes in a dilution of 1 to 20.

The temperature remained normal until the evening of the twenty-sixth day, when there was another chill, fever, and sweat. Examination of the blood showed pigmented leucocytes and two malarial organisms of the tertian variety. The temperature was normal until the following afternoon, when there was another chill. Large doses of quinine were given after the discovery of the plasmodia, with the result that no more chills appeared. A slight rise of temperature occurred on the thirty-first day, but after this there was no fever. Repeated examinations of the blood showed many pigmented leucocytes, but no more plasmodia.

To briefly summarize: The case was one of undoubted typhoid fever, with all the typical clinical features and positive Widal and diazo reactions. There was no malarial history preceding the attack. Upon the twenty-fourth day there was a sudden fall of temperature from 100⅕° F. to subnormal, followed by a chill, fever, and sweat. After an intermission of apyrexia, lasting two days, a series of chills occurred upon successive days. The blood examination showed the presence of tertian malarial plasmodia and pigmented leucocytes. The diagnosis was further confirmed by the therapeutic test of quinine.

The proof that typhoid fever and malaria could be concurrent in the same individual was first advanced by Gilman Thompson, in 1895. Four years later Lyon collected and analyzed twenty-nine authentic cases, in which the plasmodium was demonstrated in typhoid-fever patients. Since the publication of his paper a report by Craig has appeared of a case in the military hospital at Chattanooga.

Observers.	Total Cases of Typhoid Fever.	Cases of Concurrent Malaria.
Da Costa	65	10
Ewing	200	5
Nammack	366	2
Tyson	112	2
Wilson	265	16
Anders	266	0
Muehleck	90	7
Total	1364	42 or 3 per cent.

The study of the diseases prevalent among the soldiers in the various campaigns and camps during the Spanish war has added much to our knowl-

edge of the condition. I have been able to collect the material for the preceding table from the reports of the various hospitals in Philadelphia and New York, where soldiers were treated, and from the various camps.

All of these reports are from competent observers, and in all the positive cases the plasmodium was found in cases of undoubted typhoid, in most of whom the Widal reaction gave positive reactions. The result would seem to indicate that the concurrence of the two diseases is not very uncommon.

In striking contrast to these figures are the experiences of Dock, in Texas, Thayer, in Baltimore, and Rho, in Italy, each of whom state that they have never observed an instance of the condition, although their opportunities have been exceptional.

A study of the cases reported in detail gives the impression that cases of typhoid fever in which malaria manifests itself during the period of fever are rare. Unfortunately, with a few exceptions, the records are too incomplete to draw reliable conclusions in regard to this point. The cases in which it was definitely stated that chills occurred and plasmodia were found during the typhoidal pyrexia are those of Gilman Thompson (one case), Da Costa (one case), Kinyoun (four cases), Craig (one case), Nammack (one case), and the eight fatal cases of Vincent.

In most of the others the malaria manifested itself either just before the typhoid fever commenced or after convalescence was established, and in a few instances both just before the fever and in convalescence. This would support the theory advanced by many that the malarial element in such cases is dominated by the typhoidal, and the former remains quiescent until the latter has subsided.

I am uncertain under which group my case belongs. The first chill occurred just at the end of the febrile period, which seemed to fall by crises directly before the rise in temperature, due to the malarial infection. It seems almost as if the onset of the malaria had cut short the typhoid process. It is unfortunate that no examination of the blood was made when the case first came under observation, consequently it is impossible to say definitely when the infection occurred. The patient had, however, shown absolutely no signs of malaria before the typhoid commenced. The fact that the chills began about a week after the patient was repeatedly bitten by mosquitoes is interesting and suggestive.

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J. P. Lyon: American Journal of the Medical Sciences, January, 1898.
J. M. Da Costa: Philadelphia Medical Journal, May 6, 1899.
James Tyson: Ibid., February 25, 1899.
J. C. Wilson: Ibid., February 25, 1899.
Charles F. Craig: Ibid., June 17, 1899.
G. A. Muehleck: Ibid., May 20, 1899.
C. E. Nammack: New York Medical Record, October 1, 1898.
James Ewing: Ibid., October 1, 1898.

ALUMNI NOTES.

The Excavation of Nippur.

Dr. Hermann v. Hilprecht, professor of Assyriology in the University of Pennsylvania, has just departed to take personal control of the latest Babylonian expedition, sent out by the University to excavate the ruins of the ancient city of Nippur. The University of Pennsylvania has been engaged ever since 1889 in exhuming this city from the mounds of earth and bricks under which it has lain hidden for centuries. Dr. Hilprecht and his party will land at Aden, on the Persian Gulf. From here they will sail up the Tigris River to Bagdad, Persia. At Bagdad they will receive a body-guard of Turkish troops to protect them on the long and dangerous journey through the Arabian desert. They will finally arrive at Nippur in the latter part of January, and will immediately commence on the excavation to get as much done as possible before the hot season sets in.

The primary object of the present expedition to Nippur is to trace out the city walls and the four gates so often spoken of in the inscriptions.

The sculptures and other archeological remains secured by these expeditions are being placed on exhibition in the museum of the University. Already they have obtained a large number of sarcophagi, clay tablets, and idols used by the ancient Babylonians. Since these have been placed on exhibition the Oriental section has been credited with being the finest in the world. It is expected that Dr. Hilprecht will return to this country in about a year. After his work is done at Nippur he will spend a few months studying the ruins of Nineveh and Cappadocia.

To serve on the Hospital-Ship "Maine."

Dr. Charles H. Weber, of the Class of '96, has been appointed assistant surgeon on the hospital-ship which is being fitted out by American women residing in London for service in South Africa.

Graduates in the Medical Department in Galveston, Texas.

Graduates of the Medical Department of the University constitute quite a colony in Galveston, Texas. O. S. Hodges, '97 M.; Bryce W. Fontaine, '97; John B. Haden, '92; W. S. Carter, '90; Allen J. Smith, Jr., '86; Edward Randall, Jr., '83, and J. F. Y. Paine, ex '63, are practising there. Of these Smith, Randall, Carter, and Paine are connected with the University of Texas, Medical Department. Allen John Smith, the first

named, is professor of Pathology in the University of Texas. He is a brother of Edgar Fahs Smith, of the University of Pennsylvania. Professor A. J. Smith was elected by the regimental officers as surgeon-major of the First United States Volunteer Infantry, or the "First Immunes," but resigned, owing to the fact that the regents of the University of Texas would not permit him to leave.—*Alumni Register.*

A Farewell Dinner to Dr. Taylor.

Dr. Alonzo E. Taylor, Class of '94, was tendered a farewell dinner by his friends, on November 7, at the University Club. Dr. Taylor, who was recently elected professor of Pathology in the University of California, and granted a year's leave of absence, sailed for Europe on November 11.

New England Alumni Society of the University.

The next Alumni dinner and reunion of the New England Alumni will be held in Boston, on Founders' Day, January 17, 1900. Any graduates of the University who have not received notices, or who have moved into New England in the past year, will kindly send their names and addresses to the secretary, Hugh W. Ogden, 73 Tremont Street, Boston.

Appointments.

Dr. A. A. Stevens, Class of '86, has been appointed lecturer on Physical Diagnosis in the University of Pennsylvania.

Dr. Burton K. Chance, Class of '93, has been appointed assistant surgeon at the Wills Eye Hospital, Philadelphia.

Dr. John M. Cruice, Class of '98, has been elected a member and secretary of the Board of Managers of St. Joseph's Hospital Philadelphia.

The Causation of Night Terrors.

Little (*Pediatrics*, October 15, 1899) draws the following conclusions from a study of thirty cases:

(1) Night terrors are in the great majority of cases caused by disorders productive of moderate but prolonged dyspnea.

(2) A preponderating number of cases are found in rheumatic subjects with early heart disease.

(3) A considerable proportion of cases are due to obstruction of nasal cavities and fauces.

(4) Digestive disturbances do not play the important part in causation that is often assigned to them.

(5) The evidence for their causal connection with epilepsy or allied neurosis is scanty.

(6) The attacks occur in the subconscious stage of early sleep, and are confined to young children under puberty.

EDITORIAL.

KERNIG'S SIGN IN MENINGITIS.

In 1884, Kernig observed a sign in fifteen cases of meningitis, which he regarded as peculiar to that disease. This sign consists in a marked flexor contracture, which renders extension of the leg difficult when the thigh is brought at right angles with the body. As no resistance is offered to extension when the thigh is in a line with the body, it is generally regarded as necessary, in testing for the sign, that the patient shall be placed in a sitting position. But Osler observes that many patients with meningitis are not in a condition to sit up, and that the test can be equally well made by flexing the thigh on the abdomen, when, on attempting to extend the leg, if meningitis be present, the limb cannot be fully extended. This contracture does not yield to persistent, but gentle pressure, and attempts to forcibly overcome it are productive of severe pain.

Of the fifteen cases in which Kernig observed the sign, thirteen were cases of cerebro-spinal fever, one was septic, and one was tuberculous. In eight cases the diagnosis was confirmed by the autopsy. During an epidemic of cerebro-spinal fever Früs found the sign present in fifty-three of sixty cases. Netter, from a study of forty-seven cases of meningitis, concludes that it is present in about ninety per cent. In the *American Journal of the Medical Sciences*, for July 1, 1899, Herrick reviews the literature of the subject, and reports nineteen cases of meningitis, in seventeen of which, or in 89.4 per cent., Kernig's sign was present. Nine were epidemic cerebro-spinal meningitis, seven were tuberculous, two were pneumococcal, and one was syphilitic, with an acute process superadded. In the two cases in which it was absent, both children, the single examination was made a short time before death, and it was noticed at the time that there was a general laxity of all the muscles. The writer in this connection recalls the fact that even the retraction and rigidity of the neck muscles may entirely disappear just before death. Osler remarked in the Cavendish lecture on cerebro-spinal fever that Kernig's sign was present in all his cases in which it was looked for. He thinks it is an old observation that the subjects of protracted meningitis, particularly children, very often lie with the thighs flexed upon the abdomen, and with the legs in a state of partial contracture, so that they are with difficulty extended. In 100 cases of disease other than meningitis examined by Herrick, Kernig's sign was absent in ninety-eight and present in two. In one of the latter, however, a subdural hemorrhage was found, but

no inflammatory changes; in the other case, it was present in the unaffected leg, in a woman who had been lying in bed for four weeks with gonorrheal arthritis of one knee, and during this time she had lain with both knees flexed. It is obvious, therefore, from the great number of cases of meningitis in which it is present, and the very large percentage of cases of other diseases in which it is absent, that this sign will be of considerable value in the diagnosis of obscure diseases with cerebro-spinal symptoms.

As to the cause of the phenomenon no satisfactory explanation has yet been advanced. Netter suggests the following explanation: "In consequence of the inflammation of the meninges the roots of the nerves become irritable and the flexion of the thighs upon the pelvis, when the patient is in the sitting posture, elongates, and consequently stretches the lumbar and sacral roots, and thus increases their irritability. The attempt to extend the knee is insufficient to provoke a reflex contraction of the flexors while the patient lies on his back with the thighs extended upon the pelvis, but it does so when he assumes a sitting posture."

Herrick, in commenting on the fact noted by Henke, that, owing to the shortness of their muscular fibres and the abundance of tendinous fibrinous material, the semitendinosus, semimembranous, and biceps femoris are unable, even in health, to stretch far enough to permit of complete extension of the leg when the thigh is sharply flexed on the body, observes that it is easy to assume that in meningitis there is such an increase in tone as to exaggerate this natural difficulty of extension into a contracture of the flexors of the leg.

Bolognini's Sign of Measles.

Koppen (*Medicine*, August, 1899) has studied anew the relation of this sign to the development of measles. It was claimed by Bolognini that it was almost pathognomonic, and that he had found it in all but two out of 200 hundred cases of the disorder. It appeared early in the disease, before the rash, and gradually disappeared as the exanthema developed. The sign is obtained by placing a hand upon each side of the abdomen, which is relaxed as much as possible, and pressing towards each other with a slight to-and-fro movement. With this maneuvre a slight friction is felt, as though two roughened surfaces were moved upon each other. Koppen found this sign present in 154 out of 343 examinations. He believes that Bolognini's explanation of the phenomenon is incorrect; he attributes it to fluids in the intestinal tube. In almost every case in which the sign was noted there was present more or less watery diarrhea. The same phenomenon was also noted in cases of diarrhea in which measles did not develop. Koppen thinks that it is a sign of measles, but that this disorder is usually accompanied by a diarrhea of this character in its early stages. The intestinal disturbance precedes the breaking out of the eruption, and only accompanies it for a short time.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND A. O. J. KELLY, M.D.

The Diagnosis of Early Phthisis.

Allbutt (*British Medical Journal,* October 28, 1899) writes how important it is to detect tuberculosis pulmonalis in the early stage is shown by some of the very careful and telling statistics of Turban, who reports of 408 patients that he received only 2.7 per cent. in their first month, and of these two began under his own eye. Yet let us turn to another column—namely, to the percentage of recoveries—a percentage based upon careful reports of all the patients (twelve only missing) discharged during seven years from his institution: he says of the patients received in the first stage, 84.4 per cent. were permanently relieved, if not cured; of those received in the second stage, only 48.8 per cent. Of those received in the third stage, only 4 per cent. were discharged relieved, and of these probably none recovered. Again, of the patients in the first stage, the duration of stay was 168 days, the mean stay of all cases being 222 days.

In the stage of enclosure, to examine the sputum, if any, cannot help us decisively in tuberculous endobronchitis; for weeks, months, or even a year, the bacilli may not find escape outwards. Turban failed to find tubercle bacilli in the sputum in the first stage in 59.8 per cent. of 408 cases.

Frequent estimations of the temperature are more helpful; but casual examinations will not serve; they must be as methodical as frequent. Every four hours is not sufficient; the thermometer must be used every two hours during the day, that is, from 8 A.M. to 10 P.M. Turban finds that, if the patient sleep well, without complaint of restlessness and heats, he need not be disturbed for the temperature during the night. When doubt still remains, it has been my own practice to test the temperature after exertion, taken between four and six in the afternoon. Turban points out that in women a good test period is about the menstrual days. On the other hand, some slight local pelvic inflammation may influence the temperature at such times. The mouth is steady enough in its indications if no hot or cold drinks be allowed just before the instrument is inserted, nor the face exposed to external cold. The instrument should be retained in place for seven or eight minutes. If in some weak persons the lips are slack, other methods in them may be preferable.

Physical Signs.—Pathology fortifies our clinical experience of the regions

wherein to search for the initial lesion, namely, at the posterior subapical area. If phthisis be suggested by anemia, dyspepsia, languor, loss of weight, quickened pulse, and the like, the chest must be minutely examined. The patient must, so far as possible, be removed from the damping effect of pillows, mattresses, and clothing, and should sit upon an uncushioned chair in a good light, every part of the chest being freely accessible. The scapula must be abducted by drawing the arm across the chest, so as to give access to the cage of the chest between its edge and the spine. Even in this, as in all other upper areas, light and single percussion must be used; light and single because heavier and multiple blows are confusing, and are apt to set up vibrations over a wider area than we would test, even on the other side of the chest. It is better to use a pleximeter in doubtful cases, and an ordinary wooden stethoscope should not be forgotten. The utmost precision in comparison of the two sides of the chest is essential. If atelectasis distal to a bronchial thrombus have taken place, some altered clang or pitch of breath or voice may reveal the consolidation. Any lagging in the expansion of either apex must be carefully noted. The writer relies little on jerky breathing, more on harshness of the murmur with loss of vesicular quality, or ill definition, "weak breathing." Moist sounds in these incipient cases may well be absent, but a single click may reach the ear, in which case the diagnosis is clinched. If the classical signs of phthisis be unmistakably present, the case is no longer in the early stage; the disease is far advanced, and cure uncertain.

In some few cases he had heard pleuritic friction over the posterior apex; all these cases did badly, as if tubercle were spreading by lymphatic channels, but there is no apparent reason why a patch of pleurisy over a lobular atelectasis should not be audible.

Although the Röntgen rays may indicate rarer spaces in an excavated lung and denser in consolidated parts, it would seem that the superposition of denser upon rarer tracts may neutralize any distinctions of value; still the trials of Bouchard and Walsham and others encourage us to hope that early foci may thus be made manifest.

Tuberculin seems to be almost a certain test of the presence of tuberculosis in its early stages; later, a tolerance of the poison seems to become established. In England most of us have been reluctant to arouse the reaction, but Turban follows other German observers and Osler, in assuring us that he has never seen any harm ensue from it, though he always keeps the patient in bed till the reaction has wholly subsided. The old tuberculin is preferred for this purpose. Of all our means of detecting early tuberculosis this may prove the most valuable.

The Gelatinous Form of Sodium Biurate and its Bearing on the Pathology and Treatment of Gout.

Luff (*British Medical Journal*, October 28, 1899), as the result of a series of experiments, concludes that the gelatinous form of sodium biurate is about five times as soluble in blood serum and artificial blood serum as the crystalline variety. The higher the alkalinity of the serum from the presence of sodium bicarbonate the more complete is the conversion of the gelatinous biurate into the crystalline variety, and therefore the less is the amount of the gelatinous biurate left in solution. The greater the proportion of potassium bicarbonate present in the serum the greater is the inhibitory effect on the conversion of the gelatinous

biurate into the crystalline form, and therefore the greater is the amount of the gelatinous biurate left in solution.

In connection with these points, it is instructive to bear in mind that mineral waters rich in sodium bicarbonate are well known to accelerate an attack of gout in many gouty subjects, and that in gouty patients the alkalinity of the blood is higher than the average alkalinity of the blood of healthy individuals. And since this increased alkalinity is due to a higher proportion of sodium carbonate or bicarbonate, it can be understood, in the light of the present investigation, why such blood is prone to hasten and to augment the formation of gouty deposits. On the other hand, it is seen that when the increased alkalinity of blood serum is due to the presence of potassium bicarbonate, the conversion of the gelatinous biurate into the crystalline variety is delayed as regards time, and is considerably diminished as regards quantity, thus explaining the well-known beneficial effect of the alkaline potassium salts in the treatment of acute and subacute gout.

The Operative Treatment of Exophthalmic Goitre.

Rehn (*Berliner klinische Wochenschrift*, October 15, 1899) states that in 177 cases, in which the goitre was resected, there was recovery in 57.6 per cent., improvement in 26.5 per cent., death in 13.6 per cent., and failure in 2.3 per cent. Of thirty-two cases in which the sympathetic nerve was resected, 28.1 per cent. ended in recovery, 50 per cent. in improvement, 12.5 per cent. in failure, and 9.3 per cent. in death. Of fourteen cases in which the thyroid arteries were ligated, 2.4 recovered, 50 per cent. improved, and 28.6 per cent. died. Of the entire 319 cases there was recovery in 51.8 per cent., improvement in 37.9 per cent., death in 13.1 per cent., and failure in 4.1 per cent.

Rapid Disappearance of Post-Nasal Adenoids after Influenza.

This subject is considered in an editorial of the *Lancet*, October 21, 1899 (*Medical Review*, London, November, 1899). The influence of one disease on another is an interesting pathological question much in need of elucidation. A number of observations have been recorded of the coexistence of two and even three diseases, but comparatively nothing has been done in investigating the subject. All that is known can be summed up thus: when two acute diseases—exanthemata, for example—coexist, each usually appears to run its course without being affected by the other; when an acute disease supervenes in the course of a chronic one the latter is often beneficially influenced and even cured by the former. This latter fact is not surprising, for intoxication by a drug is a disease, and conversely (according to modern views) most, if not all, acute diseases are intoxications by microbial products (toxins). Hence to cure by a disease is strictly analogous to curing by a drug.

Chauveau (*La France Médicale*, September 1, 1899) has described a new illustration of the curative influence of an acute on a chronic disease, the effects of influenza on post-nasal adenoids. A child, aged 9 years, had adenoids. An operation was decided on, but an attack of influenza prevented its performance. A month later, when the child was examined, no growths requiring operation were found. In the case of another child, aged 11 years, operation was deferred for family reasons and influenza supervened. When the child was seen again two

months later, in order to have the day of operation arranged, no adenoids of appreciable volume could be discovered. A third case occurred in a girl, aged 13 years. In none of these cases had there been any symptoms of inflammation of the growths.

Chauveau could not find any similar cases recorded. But Bryson, Delvan, and Hooper have described the disappearance of adenoids after acute catarrh of the nasal fossæ and naso-pharynx. Analogous diminution of the tonsils has been described. Corominas published a case of recovery from enormous hypertrophy of the tonsils after scarlatinal angina.

The Value of the Tuberculin Test in the Diagnosis of Tuberculosis.

Otis (*Boston Medical and Surgical Journal*, July 6, 1899) summarizes his conclusions as follows: (1) The tuberculin test indicates early tuberculosis by a general reaction before it can be detected by other methods, with the exception, possibly, of the Röntgen rays. In the majority of cases, doses of from five to ten milligrammes of Koch's original tuberculin are sufficient; (2) in these doses no injurious effects occur; (3) established tuberculosis may fail to give a general reaction from doses of from ten to twelve milligrammes; (4) a similar reaction is given by syphilis in an undetermined proportion of cases; (5) there is a dose not definitely settled with which a non-tuberculous person may react or simulate a reaction; (6) the reaction may be deferred from six to twenty-four hours. The author formulates the following rules to be observed in making the test: (1) Always use the same tuberculin of a standard strength; (2) employ strict asepsis in the injection; (3) make the injections deep into the muscles of the back, arm, or leg; (4) beginning twenty-four hours before the injection, a record of the temperature should be kept every two, three, or four hours; (5) the test should not be repeated until several days have elapsed; (6) the general reaction may be depended upon in early cases, but in late established cases, if the general reaction fails, we should look for the local.

Acute Streptococcal Meningitis supervening in Chronic Nephritis.

Rolleston (*Lancet*, October 21, 1899), at a recent meeting of the Clinical Society of London, described a case of acute streptococcal meningitis supervening in the course of chronic parenchymatous nephritis occurring in a man, aged 22 years, admitted to hospital on the eighth day of his illness, with a temperature of 103° F., but without any definite evidence as to the nature of his illness, which had begun with tonsillitis. The insidious onset of the illness suggested typhoid fever, but Widal's reaction gave absolutely no result. He was quite free from headache on admission, but a day or two later he had two fits, passed into a condition of cerebral irritation, and died comatose. The necropsy showed extensive purulent meningitis, due to streptococcal infection, and an acute tubal nephritis on the top of chronic parenchymatous nephritis (contracting white kidney). No streptococci were visible in microscopic sections of the kidney, so the acute renal changes might have been toxic; but inasmuch as cultures were not made from the spleen or heart's blood it could not be certainly said that the streptococcal infection was confined to the meninges of the brain. Flexner had shown the great frequency of terminal infections on chronic renal and cardiac disease, and his experiments pointed to this being dependent on a diminution in the bactericidal

power of the blood in renal diseases. Terminal infections in renal disease were known to be common in the lungs, pleura, heart, and pericardium, but not in the meninges. In Flexner's statistical study of the terminal infections in chronic heart or kidney disease the few cases of meningitis that occurred were almost always due to pneumococci, the lungs forming the source of infection. This case was remarkable for the unusual site of the terminal infection and for the latency of the meningitis. Cerebral symptoms only supervened two days before death. It seemed probable that the tonsils were the portal of introduction of the infection.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

CHARLES H. FRAZIER, M.D., AND GEORGE M. PURVES, M.D.

Oöphorectomy for Inoperable Carcinoma of the Breast.

Stanley Boyd reports in the *British Medical Journal*, September 30, 1899, three cases of removal of both ovaries for recurrent carcinoma mammæ. After a study of these and the other cases so far reported he says :

1. The ovaries removed have usually seemed healthy.

2. That results are not uniform ; some are successful, some partially so, some quite unsuccessful. Non-success seems to be connected with (1) presence of much cancer ; (2) affection of bones and viscera ; (3) long cessation of menstruation, or rather with the ovarian changes indicated by this ; and (4) cachexia. But there is something else required to account for some of the failures.

3. *As to Type of Disease.*—No really acute case has shown the maximum of benefit ; but for six months marked improvement occurred in one of the author's cases, in which the total known duration of the disease was two and a half to three years. The most successful cases were of four to seven years' growth up to the oöphorectomy.

4. *Age.*—The extreme ages of the patients were : 33 in Beatson's No. 1 ; 49 in Herman's No. 2.

5. *Relation to Menopause.*—This patient of Herman's had for six months been irregular, and for three months had seen nothing. This is the only case known to me of improvement from oöphorectomy apparently after the menopause.

6. *Influence of Seat of Secondary Nodules.*—Growths starting from mammary epithelium are not uniformly affected by oöphorectomy. Speaking generally, those in skin and subcutaneous tissue are most readily affected by oöphorectomy ; then infected glands, then growths in the breasts itself. Muscle nodules grow slowly, and I know of no proof that growths in bones or viscera are affected at all. Even neighboring growths in the *same* tissue do not disappear at the same rate.

7. *Duration of Action.*—Sufficient time has not yet elapsed to determine whether any of these disappearances of cancer may be permanent. My first case showed no sign of relapse when the author saw her, twenty-eight months after

oöphorectomy. In Dr. Beatson's case No. 1, relapse began at twenty-five months. When relapse occurs there is a great tendency for nodules to reappear upon old sites, as if some cells had remained dormant at these spots. In some cases, for example, Dr. Beatson's No. 1, the recurrences have developed very slowly, as if held in check or restricted by the tissues ; and I think I have noticed the same retarding influence in the case of growths which have not disappeared after an oöphorectomy. But it is, of course, impossible to be certain of this.

8. *Mode of Disappearance.*—Dr. Beatson showed that diminished vascularity of cancer nodules coupled with loss of pain was the earliest effect of oöphorectomy. By excising shrinking nodules he demonstrated that they were undergoing rapid fatty degeneration.

9. *Effect upon Cancer other than Mammary.*—Uterine cancer has in several instances been treated by oöphorectomy. Diminution of hemorrhage and of sepsis have been the most favorable results obtained. And yet one would have supposed that the association of the ovary and uterus was closer than that of the ovary and breast.

RESECTION OF NEARLY TWO METRES OF THE SMALL INTESTINE: RECOVERY.

SCHLATTER reports (*Correspondenz Blatt f. Schw. Aertze*, July 15, 1899) the case of an Italian, aged 23 years, who received a stab wound in the hypogastrium, from which the intestines protruded. He was able, however, with assistance, to walk to his home, some three hundred yards distant, where a temporary dressing was applied. Eight hours after the accident he was received at the Zurich Clinic, where it was discovered that the small intestine was protruding from the wound. It was mostly dark-blue or even black in color and the peritoneum was dull. The patient was not suffering from collapse. An hour after admission the patient was etherized, and the wound carefully disinfected and examined. The prolapsed intestine was found to be strangulated in the wound, and already partially necrotic. Reposition could not be thought of. Resection was therefore decided upon, and enough healthy intestine brought out of the wound to accomplish this. Woelfler's compressors were applied, and Pean's forceps occluded the part to be removed. The intestine was then divided and the corresponding portion of the mesentery rapidly removed. The vessels were ligated, the mesentery united by interrupted silk sutures and the bowel by sutures in three layers. After enlarging the skin wound, the intestine was returned. There was no effusion in the peritoneal cavity nor any wound of the intestine. The portion of the bowel removed measured nearly two metres in length in the unstretched condition, and was entirely from the ilium. Convalescence took place without incident.

Observations on the assimilation of albuminoids and fat were carried out for a period of nine days. The patient was allowed his choice of the hospital diet, of which he consumed a large quantity of nitrogenous and fatty articles. The average loss of nitrogen was 10.47 per cent., about the extreme normal loss. The average loss of fat was 13.91 per cent., which is above the normal. Dreesmann collected twenty-six cases of resection of more than one metre of the small intestine. Of the seventeen who survived the operation, five suffered from disturbances of digestion, whilst the other twelve were entirely free therefrom. There have been six cases recorded of resection of more than two meters of the small intestine, viz., Koebele, 205 centimetres; Kocher, 208 centimetres; Dreesmann, 215 centimetres;

Shephard, 234 centimetres; Fantino, 310 centimetres; Ruggi, 330 centimetres. Of these the first and last only escaped disturbances of the digestive function. Dreesmann concludes that resections of less than two metres in the absence of complications could be borne with impunity. The young bear the loss of a greater length without impairing the digestion than those of middle age and over.

Treatment of Fracture of the Patella by Suture of the Capsule without touching the Bone Fragments.

According to the views entertained by Volkes (*Revue de Chirurgie*, October 10, 1899) the amount of disability that may follow the treatment of fractures of the patella depends not upon the failure to secure bony union between the fragments, nor upon some little separation, but altogether upon the extent of the injury to the capsule, and the failure to obtain union between its two edges. In other words, the power of the quadriceps extensor to extend the leg on the thigh is more limited should the fracture be associated with a laceration of the capsule than if there was only a fracture of the patella. This was demonstrated by dissection upon the cadaver as follows: the patella was divided in such a way as to simulate fracture, but the capsule was not disturbed. By employing extension and counter-extension with some little force, he was only able to effect a separation of about twelve millimetres. On the other hand, if the capsule be divided laterally on either side of the patella, with the slightest effort a separation of twelve centimetres could be effected. His indications for surgical interference are based solely upon the presence of injuries to the fibrous expansion in the capsule on either side of the patella, and the operation consists in a free exposure of the joint, removal of clots, and suturing of the rent in the capsule. The bony fragments are not sutured. When there is a simple fracture uncomplicated by laceration of the capsule, no operative interference is necessary.

Gall-Stones.

After noticing the symptoms of gall-stones and the course of the disease if untreated, Simpson states the following indications for immediate operative interference: 1. Any case of hepatic colic in which a tumor of the gall-bladder can be made out. 2. Persistent jaundice with pain, even at the risk of finding a cancer. 3. Recurrent biliary colic. 4. Biliary colic followed by persistent jaundice. 5. Colic with a prolonged rise of temperature and high pulse. 6. Obstruction of the common duct evidenced by jaundice and acholic stools. 7. Obstruction of the bowel and peritonitis. 8. Empyema of the gall-bladder and liver abscess. A state of cholemia does not contraindicate the operation. He describes the method of Bernays of performing cholecystotomy, which he considers preferable and adopts in his practice. He says also the combined longitudinal and oblique incision is the best in case a choledochotomy or cholecyst-duodenostomy has to be performed, when stricture of the common duct has been found. In the latter operation the incision into the duodenum must be twice the size of that in the fundus of the gall-bladder, or the contents of the former will enter the latter and lead to trouble.—*Journal A. M. A.*, September 16, 1899.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D.,

AND

ARTHUR A. STEVENS, M.D.

The Treatment of Headache.

Brunton (*British Medical Journal*, November 4, 1899) states that the first method of treatment in headaches is to try to supply the brain with healthy blood, to clear away any toxins that may be present in it,—and one method of doing this is by the administration of a blue pill and a black draught. But more than this, we may try to give something which may have the power of counteracting these toxins, or of producing elimination from the liver; and he has found that the easiest way of accomplishing this is by giving salicylic acid or sodium salicylate; so that in persons who are liable to headaches he generally prescribes sodium salicylate, fifteen, twenty, or thirty grains at night, with ten to thirty grains of potassium bromide. This mixture acts better than either sodium salicylate or potassium bromide alone, and will usually prevent the occurrence of a headache in the morning. If, however, the headache should still come on, he repeats the dose, and when the headaches are very violent and recurring he prescribes the salicylate not merely morning and evening, but three times a day, before or after meals. For counteracting the depression excited by the salicylate he gives along with the latter half a drachm of aromatic spirit of ammonia. When the salicylate is long continued it may induce anemia, and to prevent this iron may be given in combination. There is another large class of drugs—antipyrin, phenacetin, acetanilid—which relieves headache by acting upon the conducting fibres or cells in the cord, and tend to disperse pain; these ought always to be given before the headache becomes too severe, because when it is severe absorption from the stomach appears to be arrested. Another drug very much used, and which apparently acts more on the posterior columns than the central columns of the cord, is caffeine. In some cases where there is a continued pain in the head lasting for a length of time cannabis indica seems to help, and this may be given either in the form of the extract or tincture. Ten minims of the latter may be given three times a day, and the dose gradually increased. For headache occurring through inflammation of the periosteum from gouty, rheumatic, or syphilitic irritation, iodide of potassium is very useful. It should be begun in small doses, and gradually increased up to ten, twenty, or thirty grains three times a day. When the pain is associated with some change in the vessels of a similar nature the iodide may be combined with bromide and salicylate, and in such cases it is advisable to give some aromatic spirit of ammonia in addition.

Heroin in Cough.

Herwirsch (*Therapeutic Gazette*, November 15, 1890) states that during the last ten months he has used heroin in more than thirty cases, mostly with good results. In acute bronchitis it gave much satisfaction. In chronic bronchitis and

phthisis the drug in most cases gave good results, and failed in only three instances. The writer concludes that heroin in doses of from 1–12 to 1–6 of a grain three times a day is a valuable addition to our materia medica in acute and chronic bronchitis and the cough accompanying phthisis. Except in three instances, the results were always satisfactory. The drug shows little or no tendency to cause constipation, and in only one case did drowsiness follow its administration. No headache or disorders of the stomach resulted from the use of heroin, as is often the case with morphine. The dose is much smaller than that of morphine or codeine, and the cost of the drug considerably less.

Erythrol Tetranitrate.

Walsham (*British Medical Journal*, November 4, 1899) says that he is sure from his experience that in erythrol tetranitrate we possess a vasodilator of great efficiency, and one that should be more generally known. In only two patients, out of about a dozen treated with this drug, has he found any unpleasant effect produced. He has given it in five cases of aortic regurgitation accompanied with cardiac pain, with considerable relief to the pain in three of the cases. In the other two amyl nitrite appeared to do more good, the erythrol producing headache. One of the latter patients, however, asked to have the erythrol tablets again, as the effect produced lasted longer than when under the administration of the amyl nitrite. Benefit was noted in two of three cases of interstitial nephritis. In uncomplicated angina pectoris, which is rare in patients of the hospital class, the writer has not had the opportunity of trying the drug. The drug appears to have been very successful in one case of Raynaud's disease.

Suprarenal Extract in Affections of the Nose and Throat.

Sharp (*New York Medical Journal*, August 12, 1899) finds that applications of a solution of suprarenal extract are of considerable value in relieving the congestion and allaying the inflammation in acute pharyngitis, laryngitis, and tonsillitis. He hopes that we have found something that will give the sufferers from hay fever some relief. In all acute inflammations of the nasal mucous membrane he likes the effect very much better than that of cocaine. He has found the best results are to be had when the solution is applied directly to the mucous membrane, and not sprayed. After operations he advises a second application, after the surface has been cleansed, in order to prevent the oozing until the crust has had time to form. He recommends a 10-per-cent. aqueous extract, made up in small quantities at a time, as the drug decomposes very quickly. He has been using the solution every day for nearly a year, and is charmed with the results.

Parotid-Gland Extract and Ovarian Disease.

Mallett (*New York Medical Journal*, August 26, 1899) summarizes the results of his experiences with parotid-gland extract as follows:

(1) It has seemed to relieve the pains of dysmenorrhea in all cases, without regard to the supposed cause or pathological condition present, to a greater extent than any of the numerous so-called uterine sedatives, all of which I have used.

(2) It relieves those dull, aching pains referred to the back and ovarian regions,

usually designated by those familiar though vague and unsatisfying terms, reflex pains, ovarian neuralgia, etc.

(3) Menstruation, when deranged, seems to become more regular as to periodicity, less in amount, and shorter in duration.

(4) During its exhibition, pelvic exudate seems to soften and become absorbed more rapidly under abdomino-pelvic massage.

(5) The general health, strength, and spirits seem to improve during its use, and those dull headaches which constitute such a persistent and annoying symptom in these cases are almost invariably relieved, and in some disappear entirely.

(6) The only counter-indication that I have thus far met with to its use has been in cases of the artificial climacteric (following double salpingo-oöphorectomies), in which cases the flashes of heat and cold were made distinctly more frequent and severe.

Excessive Sweating of the Feet.

Adler (*Deutsche medicinische Wochenschrift*, October 5, 1899) highly recommends painting the soles with formalin once a day, and the spaces between the toes, when formalin is not well borne, he directs should be dusted with tannaform. If there be maceration, tannaform alone should be used, and replaced by formalin after healing has been effected.

Urotropin in certain Genito-Urinary Diseases.

Thompson (*Boston Medical and Surgical Journal*, November 16, 1899) has employed urotropin in sixty-seven cases of genito-urinary disease, chiefly chronic, with gratifying results. The dose was generally seven and a half grains (compressed tablet), followed by a full tumbler of water, morning and evening; at times in severe cases a third dose was given. With but few exceptions the effect was apparent in from twenty-four to forty-eight hours, when, upon examination, the urine was found to be sweet and transparent. In the writer's experience the drug has been most useful in chronic seminal vesiculitis. In these cases the turbidity of urine disappears like magic. In two cases of enlarged prostate with murky urine the effect was most gratifying. In "idiopathic irritability" of the bladder occurring in patients of a neurotic temperament, with a tendency to the secretion of a heavy, strongly acid urine, and also periodic attacks of hepatic congestion, urotropin is without a competitor.

In gonorrhea, after the acute symptoms have subsided and the hyperacidity, due to the excessive amount of pus, passes away, urotropin is useful in retaining the acidity of the urine, in checking bacterial growth, so that nature in consequence will find no difficulty in healing the mucous membrane.

Normal Salt Solution in Toadstool Poisoning.

Noyer (*La Presse Médicale*, September 30, 1879) reports a case of a man, aged 52 years, who had been poisoned by eating mushroom omelet. Among some of the mushrooms that were left poisonous varieties were found. The symptoms were collapse, stertorous breathing, marked tremors, dilatation of the pupils, and a feeble pulse, averaging twenty-eight beats per minute. Under the application of external heat, and the hypodermic injection of atropin, ether, and alcohol, the symptoms grew worse. One thousand cubic centimetres of artificial serum were

then injected under the skin with remarkable results. The pulse rapidly increased to 60 a minute. The respirations lost their Cheyne-Stokes character, the temperature rose to the normal, and in twelve hours recovery was complete.

Iodipin.

Klingmüller (*Berliner klinische Wochenschrift*, November 25, 1899; *Boston Medical and Surgical Journal*, November 16, 1899), from his experience with 400 to 500 injections of iodipin (a stable combination of iodine with oil), draws the following conclusions:

(1) Iodipin given subcutaneously has a specific action on tertiary syphilis.

(2) The organism remains longer under the influence of the iodine than with other preparations yet employed.

(3) By the subcutaneous method none of the iodine is lost.

(4) The organism works over the iodipin administered slowly and uniformly.

(5) No signs of iodism occur.

(6) The dose can be absolutely graduated.

(7) The subcutaneous use of iodine allows an iodine treatment of patients who for one reason or other cannot or will not take iodine.

(8) The body can be placed under the influence of iodine for weeks or months by means of an injection cure which demands but a few days.

OBSTETRICS.

UNDER THE CHARGE OF

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ASSISTED BY

W. A. NEWMAN DORLAND, M.D.

Eclampsia treated by Saline Infusion.

Allen (*American Journal of Obstetrics*, May, 1899) reports three cases treated by this method. Case I., a secundipara, aged 23, had been in convulsions seventeen hours when first seen, and had had about twenty-five attacks. When brought into hospital she was comatose. Under chloroform the cervix was incised to the vaginal vault, internal podalic version was done, and the child was extracted; time, seven minutes. Free hemorrhage from uterus and from cervical incision; tamponnade of uterus and vagina with sterile cotton pledgets. As soon as possible an injection of saline solution was made into the cellular tissue under the mammary glands; 1000 c.c. were used, strength six grammes to one litre. Nine hours after delivery a second injection of 1400 c.c. was given. On the following day the tampon was removed, the uterus was washed out with sterile salt solution, and 1400 c.c. injected subcutaneously. On the third day 1400 c.c. were injected, making 5200 c.c. in three days. After each injection the change for the better was marked. Medicinal treatment was used also, mostly eliminative. The patient

was discharged perfectly well on the twenty-first day. The child was practically dead when born, and all efforts failed to resuscitate it. Case II. A primipara, aged 18, was seen after having had five convulsions. Delivery was effected under chloroform in the same way as in Case I., and occupied eight minutes. Half an hour after delivery 600 c.c. of sterile salt solution were injected under the mammary gland, and 1200 c.c. six hours later. On each of the following two days 1400 c.c. were injected, making 4600 in all. The patient was well on the twenty-third day, except for a breast abscess caused by the needle. The child was born asphyxiated, but was revived, and is now living and healthy. Case III., a primipara, aged 18, had had four convulsions before admission to hospital. Under chloroform the cervix was dilated with the fingers, forceps applied, and delivery completed. Pulse, immediately after delivery, 130. Twenty minutes later 1100 c.c. salt solution were injected; fifteen minutes after injection, pulse 104; thirty minutes after injection, 97. One hour and a quarter after labor a convulsion occurred; the cephalic vein was opened, and 656 c.c. of very black and thick blood allowed to flow out; at the same time 700 c.c. salt solution were injected; pulse 98. Six hours after labor another convulsion; vein opened again and 192 c.c. of blood drawn. Morphine, 1–6 grain hypodermically; chloral hydrate forty grains, and potassium bromide sixty grains, per rectum. After this no more convulsions occurred, and the patient was quiet; there were no more indications for salt injections, and the patient was discharged on the nineteenth day, perfectly well. The child was asphyxiated, but revived after a time, and seemed in fairly good condition. About two hours after delivery a convulsion occurred, resembling very closely those of the mother. The ligature was removed from the cord, and two ounces of blood allowed to flow; six drachms of salt solution were injected under the skin, after which it did well, until, five hours later, the convulsions returned, occurring every ten minutes. Three ounces of salt solution were injected into the rectum, and the child put into a continuous warm bath, but it gradually became worse, and died nine hours after birth. The author gives the following excellent summary of the treatment of eclampsia: *Pre-eclamptic Stage.*—Purge the bowels, stimulate the skin by warm baths twice a day; use a milk and water diet and give sedatives. Examine urine quantitatively for urea; if the quantity is insufficient, stimulate and keep the patient under close observation. If there is no improvement, induce premature delivery. *Eclamptic Stage.*—Give morphine hypodermically at once, and inject into the rectum forty grains chloral hydrate and sixty grains potassium bromide. As soon as possible put the patient under chloroform, and complete delivery; this usually necessitates forceps or version, more often the latter. Use force if necessary. The disease cannot be treated till the cause is removed. After delivery do not stimulate the uterus to contract, but let it remain relaxed, and bleed until the patient's symptoms show that she has had enough. If sufficient hemorrhage does not occur, open a vein. As soon after delivery as possible inject sterilized salt solution subcutaneously; as much as 700 c.c. can be injected under each mamma. Continue this at intervals for two or three days. Stimulate elimination; for the bowels the best is croton oil,—two drops in two drachms of olive oil. As soon as the patient rouses sufficiently give drachm doses of Epsom salts every hour. The salt solution usually acts wonderfully in stimulating the kidneys; but, if necessary, use dry and wet cups, with a half-ounce of infusion of digitalis every four hours. The diet is exclusively milk. To stimulate the skin, the hot-air bath or the wet pack is used. Tonics during convalescence. —*British Medical Journal*, July 29, 1899.

Hydatid Mole in a Virgin: Membranous Dysmenorrhea.

Bock (*Bulletin de la Société Belgique de Gynäkologie et d' Obstetriques*, Vol. x, No. 3, 1899) relates the case of a child, aged 12½ years, living well cared for, and under conditions which rendered her virginity above suspicion. Two months after her twelfth birthday the first period occurred. Clots were passed, without pain. At the second period there was pain, and a clot was passed. This clot was covered with a white membrane, forming a perfect cast of the uterus. On microscopical examination the cast proved to be endometrium, with uterine glands and ciliated epithelium. Thus already the child suffered from membranous dysmenorrhea. The phenomenon was repeated at the third period. The fourth was extremely painful. There was slight show for three days, then a typical hydatid mole was expelled. Its base measured over three-quarters of an inch. It was made up of vesicles arranged like rows of beads; each vesicle was full of a transparent serosity, its wall was made up of loose fibro-cellular tissue with many veins. The vesicles varied in size; the smallest were of the dimensions of a pin's-head, the largest as big as a pea. The next period, and all that have succeeded, have been normal. The child has been watched ever since the expulsion of the mole four years ago. Bock suspects some relation between the membranous dysmenorrhea and the mole. A piece of the diseased endometrium or menstrual decidua may have remained behind and undergone a pseudoplacental change. Jacobs has already asserted that the hydatidiform mole may develop independently of gestation, and Bock's case, in his opinion, proves that theory. Keiffer suspects that there may be more than one variety of hydatidiform mole.—*British Medical Journal*, July 29, 1899.

Congenital Diastasis of the Symphysis Pubis.

Schauta (*Centralblatt für Gynäkologie*, xxiii, 1047, August 26, 1899) showed at a meeting of the Vienna Obstetrico-Gynecological Society a pregnant woman whose symphysis pubis gaped to the extent of two centimetres, and necessitated the wearing of a retentive apparatus. It was believed to be congenital, but it was most remarkable that it was not accompanied by ectopia vesicæ. In this respect it was unique. The patient had had one former pregnancy which had gone to the full term. The labor was easy, quick, and almost painless; the child was alive, and the puerperium was free from fever. The ends of the bones at the diastasis were rounded; there was no scar and no history of trauma, and, in answer to a question, Schauta said there was no reason to think that there had been tuberculosis of the joint.—*British Medical Journal*, September 30, 1899.

Occipito-Posterior Presentation.

Fry (*American Journal of Obstetrics*, August, 1899) points out that when an occipito-posterior position cannot be manually corrected, and when the delivery cannot be readily effected by forceps, the most common practice is forcible extraction with the forceps, and that this results in a high fetal mortality, as well as in frequent injuries to the soft parts of the mother. If the amniotic fluid has not been evacuated too long, if the uterine walls are not too firmly applied to the fetus, and if the head has not come down too far into the pelvic cavity, podalic version offers a fair chance of success. But if this be tried when the above conditions are reversed, version is liable to lead to maternal death from shock or uterine rupture.

Fry, therefore, advocates that when the fetus is dead craniotomy should replace forcible extraction. Failure to detect the heart sounds must not be accepted as a sign of the death of the child, as it is often difficult to hear them in occipito-posterior positions; but the hand must be inserted into the uterus (under complete anesthesia), and the presence or absence of pulsations in the funis be determined. If the child is living symphysiotomy should be adopted, as giving the child the best chance and adding but little to the maternal risks.—*British Medical Journal*, September 30, 1899.

GYNECOLOGY.

UNDER THE CHARGE OF

JOHN G. CLARK, M.D.,

ASSISTED BY

H. D. BEYEA, M.D., AND H. L. WILLIAMS, M.D.

Results of Vaginal Hysterectomy.

After a brief consideration of this subject, Jessett (the *Lancet*, London, November 18, 1899) states that in deciding whether to perform vaginal hysterectomy or not in a given case he is guided by the following rules:

(1) If on examination of a patient at or past the menopause who was suffering from a discharge from the uterine cavity, which discharge was colored and offensive, and in whose case the introduction of the sound caused bleeding, he should feel pretty certain that he had to deal with a case of carcinoma of the body of the uterus, and he should advise carcinoma. Should any doubt, however, exist, he would dilate the cervical canal, curette the cavity, and have the débris examined microscopically. If the report of the pathologist were unfavorable he should at once urge operative measures for the removal of the entire organ.

(2) If the disease had commenced in the cervical canal or the external os, even if the walls of the vagina were somewhat invaded, so long as the uterus itself was not fixed or the broad ligament invaded, he should not hesitate to advise operation. Even in advanced cases, so long as the uterus is movable, he is convinced that much relief may be afforded and life may be prolonged by vaginal hysterectomy. To his mind the surgeon who will limit this operation only to those cases in which he can pull the uterus down through the vulva is not doing his best for his patient. One might just as reasonably argue that because a carcinomatous breast is somewhat fixed and the axillary glands are affected, therefore the surgeon should not remove it. What surgeon would hesitate to operate in such a case?

Jessett has performed vaginal hysterectomy for carcinoma of the uterus in 107 cases. Nine of the patients died from the operation, three from shock, two from intestinal obstruction, and four from peritonitis. Of these 107 patients four were operated on in 1892, 17 in 1893, 22 in 1894, 16 in 1895, 18 in 1896, 18 in 1897, and 12 in 1898. Of the four patients operated on in 1892 one is known to be well at the present time, one died within a year from recurrence, one had early recurrence,

and one was lost sight of. Of the seventeen patients operated on in 1893 one died from septic peritonitis and six had recurrence and died within a year. Of these one died in three months from secondary growth in the pylorus, and one died nine months after operation from secondary growth in the intestines. There was no local recurrence in either case. In three cases the patients have been lost sight of, but they were well twelve months after the operation, and the remaining five were free from recurrence when last seen two and three years after operation. Of the twenty-two patients operated on in 1894 five had early recurrence and three died from the operation,—viz., one from shock, one from intestinal obstruction, and one from peritonitis. One patient died twelve months after from other causes, and there was no local recurrence. Seven patients were well when they were last seen, from nine to fifteen months after operation, and presumably they are now, and the remaining six were well after two years, and, so far as is known, they have had no recurrence. Of the sixteen patients operated on in 1895 five had early recurrence, two within a year, two within two years, and one within two and a half years. The remainder were well when they were last seen, and of these four have been seen or reported on quite recently. Of the eighteen patients operated on in 1896 two died from septic peritonitis, five had recurrence within a year, and one died within the year from secondary glandular affection and with no local recurrence, two patients were lost sight of after leaving the hospital, and the remainder were free from recurrence when last seen or heard of. Of the eighteen patients operated on in 1897 two died, one of them from intestinal obstruction and one from peritonitis. In three there was early recurrence, one had secondary deposits in the abdomen, two were lost sight of, and the remainder were free from recurrence when last seen. Of the twelve patients operated on in 1898 one died; this was a case of combined abdominal and vaginal hysterectomy, the carcinomatous uterus being also the seat of several myomata. In one case there was immediate recurrence; upon the remainder it is too early to make any comment, although they are free from recurrence at present, two of the cases were complicated by the presence of ovarian cysts which were tapped through the vagina and removed. Both patients recovered. In five cases myomata were present, in four instances necessitating the performance of the combined abdominal and vaginal operation. Two of these died from shock. Myomata of smaller size were present in several other cases, and in these the diseased organ was able to be removed per vaginam. In thirteen cases the seat of disease was limited to the body of the uterus. In the remainder the disease commenced in the cervical canal or enlarged os, and in many of these the mucous membrane of the vagina was more or less invaded.

Comparison of Indications for Cesarean Section, Symphysiotomy, Craniotomy, and Premature Delivery.

Leopold (*Münchener medicinische Wochenschrift*, 1899) says:

Far above every consideration is the value of the mother to the home. Other children may be born, another father may take the father's place, but a mother's place can never be filled. Far better to perforate once too many times than once too few. The practitioner must deliberate with himself whether he is equal to a section or a symphysiotomy, and will not regret his rashness before he has finished it; also whether he has reliable and skilled assistance, and whether the surroundings of the home will not jeopardize the success of his best efforts. Bearing these

axioms in mind, he summarizes the indications as follows: Before term, artificial, premature delivery is indicated for women who have had trouble in previous deliveries from a narrow pelvis—limit 7 cm. conjugate vera for a flat rachitic pelvis, 7.5 for a generally narrow pelvis. The best time is the thirty-fifth week of the pregnancy. Retention of the bag of waters and head presentation are essential conditions for success. At term the extreme limit for craniotomy is 6 cm. conjugate vera. The indications are a dead or dying child. Even if delivered by section, the probabilities of the survival of the child are too slight to counterbalance the danger to the mother, except in most exceptional cases. Craniotomy may also be indicated in private practice with a living child and woman in good condition when the practitioner dares not venture upon section or symphysiotomy and the pelvis is too narrow for natural or forceps delivery. Cesarean section is imperatively indicated in case of a conjugate vera of 6 to 0 cm.; relatively indicated with 7.5 to 6, after spontaneous delivery, has been found impossible, even with colpeurynter and Walcher's position, and it is impossible to use the forceps, the child is living, and the surroundings those of a hospital or residence insuring a successful after-treatment. If these conditions are not all present, craniotomy should be preferred. Symphysiotomy is restricted to pelves of 7.5 to 6.5 conjugate vera, and the conditions should be the same as for section, with craniotomy the alternative. The choice between it and section depends upon the taste and experience of the operator. They stand on about the same plane in respect to the results for mother and child.—*Journal of the American Medical Association*, September 16, 1899.

Removal of Seven Uterine Fibroids with Preservation of the Uterus.

Blanc (*Loire Médicale*, April 15, 1899) has operated on a woman 35 years old who had been married for eight years, but had never been pregnant; she suffered from pains in the abdomen and from menorrhagia and pressure symptoms (constipation, dysuria, etc.); and examination revealed a tumor reaching as high as the umbilicus. The cervix was pushed forward against the symphysis pubis, but the body of the uterus was lost in the mass of the growth. The patient was anesthetized with ether and the abdomen opened. Seven uterine fibroids were found; one as large as an infant's head was attached to the middle line of the uterus; on each side of it, but also on the fundus uteri, was another smaller one; none of these had a pedicle. Three smaller ones (size of an egg) were discovered in the vesico-uterine pouch, these were pediculated and freely movable. The seventh tumor was found impacted in the pelvis. All these growths were easily enucleated without opening into the cavity of the uterus at all, the operation lasting fifty minutes. Recovery was good, and three weeks later the patient left the hospital with a complete disappearance of all pressure symptoms. It is now two years since the operation, and the patient continues well and quite able for the very heavy work which she has to do.—*British Medical Journal*, July 29, 1899.

PATHOLOGY.

UNDER THE CHARGE OF
SIMON FLEXNER, M.D.,
ASSISTED BY
DAVID RIESMAN, M.D.

The Pathology of Renal Tumors.

Kelynack (*British Medical Journal*, November 4, 1899) states that primary renal tumors are met with in a little less than ½ per cent. of all cases submitted to necropsy. In his experience they form from 2 to 3 per cent. of all cases of primary malignant disease examined post-mortem. Secondary growths occur in about 8 per cent. of all cases of carcinoma, and over 14 per cent. of all cases of sarcoma. Renal sarcomata seem to be the commonest form of abdominal growth in children. The influence of age on renal growths is striking. From an analysis of 160 collected cases, he finds that eighty-four, or over 52 per cent., originated below ten years of age, and of these no fewer than seventy-four were under four years. As regards the size of renal tumors there is every variety. Carcinomata are usually smaller than sarcomata, which often reach immense proportions. The average weight of twenty-four sarcomata from subjects whose average age was three years was over 124 ounces. In the sarcomata a bilateral involvement is frequent. Benign tumors are rare and of little importance. The fibroma, lipoma, and angioma are met with.

Sarcoma.—It is now generally recognized that renal sarcoma may originate during intrauterine life. There is much in favor of the view that at least some of these congenital sarcomata originate in Wolffian remains. The first five years of life are peculiarly liable to malignant disease of the kidney, which is nearly always of a sarcomatous type. Girls are a little more liable than boys. The disease is very rare between five and thirty years. These tumors grow rapidly, become very large, give rise to little or no pain, and rarely produce urinary symptoms. The following varieties may be recognized: capsular, intertubular, hilum, and perirenal. The majority of the sarcomata consist of round and spindle cells in varying proportion. The round seem to be the most rapid in growth and malignant in character. The striated-cell sarcoma (elongated and transversely-striped cells), often spoken of as the rhabdomyoma, is met with exclusively in the fetal forms and those met with infancy.

Adenoma.—Adenomatous growths are divided into simple adenomata, trabecular cystomata, and papilliferous cystomata; the latter being closely related to the carcinoma.

Carcinoma.—Renal carcinomata probably never occur in early life. They are uncommon before middle age. They occur in two chief forms: (1) the glandular type or true carcinoma, originating in the urinary tubules; and (2) the surface form or epithelioma, springing from the pelvis and calyces.

Renal Growths and Adrenal Inclusions.—Kelynack states that the facts on which rests the view that there is a relationship between certain forms of kidney growth and aberrant renal structures are still meagre, and he is inclined to think

that the judgment of some is too apt to be captured by a suggestion so attractive, though he admits that there is undoubtedly a group of renal tumors which present a structure closely resembling the zona fasciculata of the suprarenal bodies. Although of adenomatous appearance, they have affinities with the sarcomata rather than the carcinomata.

Pathology of Acute Chorea.

Thomson (*British Medical Journal*, November 4, 1899) describes the microscopic changes found in the brain in a fatal case of acute chorea. These changes consisted of a slight loss of chromatophile substance at the periphery of the cell-bodies of the brain, together with some swelling and alteration in the shape of some of the cells. With the silver nitrate stain, some varicosities of the cell processes were seen; but it was considered that they were very likely artificial, and no conclusions were drawn from them. No definite vascular lesions were found. There were no changes found in the motor cells of the spinal cord. An attempt to obtain a cultivation from the cardiac valves and from the blood during life failed. The other tissues examined were the heart and the kidneys, the latter showed no change, but the former showed swelling and indistinctness of the fibres and feeble staining of the nuclei, and had evidently been affected by the same poison which gave rise to the endocarditis. After briefly discussing the different ideas concerning the causation of chorea, the author concludes that the most reasonable one is that it is due to a toxin circulating in the blood, but considers that at present there is not sufficient evidence to warrant a conclusion that it is of bacterial origin.

The Pathology of Paralysis Agitans.

Dana (*American Journal of the Medical Sciences*, November, 1899) reports a case of paralysis agitans in which the anatomical changes were as follows: Some general atrophy of the cord, moderate increase in connective tissue, and dilatation of perivascular spaces; no special thickening of the blood-vessels, either veins or arteries; no meningeal thickening; pronounced changes in the anterior cornual cells, consisting of atrophy of these cells, pigmentation and vacuolization, loss of dendrites, diminution in the richness of the plexus formed by the dendritic processes; the process most marked in the upper cervical and lower dorsal region; Clarke's column is not markedly affected; the brain cortex shows slight degeneration of cells; the olivary nerve-cells degenerated; the peripheral nerves normal; the muscles and end-plates showing some fatty degeneration. The writer does not believe that the pathological anatomy of paralysis agitans represents merely a premature condition of senility, but infers from the history of the disease that it is primarily a parenchymatous nervous disease. The onset of the trouble is sometimes very sudden, and shows the almost apoplectic-like disturbance of certain groups of nerve-cells. The clinical facts and pathological examinations lead one fairly to infer that the incident of the attack falls upon the dendrites of the cells of the anterior horns of the cord, or else upon the end-brushes of the neuraxons that come from the voluntary motor tract and the cortical motor centres of the brain. The writer attributes these changes to the action of an infection or poison from which they have recovered, but which has, nevertheless, left the imprint upon certain groups of cells and neuronic mechanisms, and when the degenera-

tive period of life comes these less viable structures begin to go to pieces. He thinks that the primary infection is, perhaps, some autochthonous poison allied to that of rheumatism, since the history of the latter is so often obtainable, and since there are many facts in the clinical history of the disease which suggest a relationship between paralysis agitans and that form of rheumatic manifestation which is known as rheumatoid arthritis.

Gordinier (*American Journal of the Medical Sciences*, December, 1899) says that it is evident that in paralysis agitans we have three characteristic changes: perivascular sclerosis, with an especial predilection for the dorsal part of the lateral and posterior columns; degenerative changes of the multipolar nerve-cells, and general hyperemia, as evidenced by multiplication, thickening with local dilatation of the blood-vessels, together with cellular infiltration. The writer concludes from these facts that the tremor and rigidity, the two characteristic symptoms of paralysis agitans, are due to one and the same cause—namely, an irritation from the presence of an increased amount of neuroglia in the posterior columns producing an excitability of the reflex collaterals of the posterior nerve-roots arborizing about the ventral cornual cells, which results in an increase of the normal rhythmic discharges of energy from those cells, producing at first the tremor, and later the rigidity. The tremor is nothing more or less than an exaggerated muscle tonus, which is due to the normal discharge of impulses from the anterior horn-cells, resulting in slight rhythmic contraction of the muscles, the tremor being so fine that its movements are invisible. The rigidity is due to an increased excitability of the anterior cornual cells from the irritation of the reflex collaterals of the nerve-roots, resulting in the loss of equilibrium between the flexors and extensors, the stronger flexors overpowering the weaker extensors, until a general rigidity results, producing the carriage so typical of this disease.

The Presence of Typhoid Bacilli in Urines of Typhoid Fever Patients.

Gwyn (*Johns Hopkins Hospital Bulletin*, June, 1899) sums up as follows the results obtained by various observers who have studied bacteriologically the urines of typhoid fever patients:

(1) In quite a high percentage, perhaps from 20 to 30 per cent. of all cases of typhoid fever, typhoid bacilli may be present in the urine.

(2) When present they are usually in pure culture, often so numerous as to make the freshly-voided urine turbid and may then be detected by a cover-slip examination.

(3) Appearing generally in the second and third week of illness, the organisms may persist for months or years, probably multiplying in the bladder, the urine being apparently a suitable medium for their growth.

(4) Though often showing evidences of cystitis and marked renal involvement, the urine containing bacilli has usually only the characteristics of an ordinary febrile urine; the presence of bacilli has no prognostic importance, and their disappearance or persistence without having induced local change is the rule.

(5) Lastly, as shown by Richardson, irrigation of the bladder with bichloride of mercury, and the internal administration of urotropin, a compound of ammonia and formaldehyde, seem to be safe methods of removing the bacilli; thirty or sixty grains of the latter quickly removing all bacilli in six cases.

CORRESPONDENCE.

MEDICAL KNOWLEDGE IN JAPAN.

REFERRING to Dr. B. Scheube's article in *Virchow's Archives*, Band xci, page 448, relative to the use of mercury in syphilis by the Japanese, and the question of their medical literature and its derivation, permit me to call your attention to some observations by my American brother alumnus, Dr W. N. Whitney, interpreter, U. S. Legation, Tokio, Japan, in the *Transactions of the Asiatic Society*, vol. xii, 1884.

"From the Shakuso-o-rai (translation of title not given) the following remarks by Mr. Kaku Kashiro throw some light upon the condition of medical knowledge in Japan, at the close of the period under consideration (that is, from the eighth to the fifteenth centuries).

"It seems that two schools of physicians, Wake and Tamba, are making new experiments in their art, notwithstanding the antiquity of their families (Wake was descended from the Emperor Suinin, B.C. 29; Tamba was descended from Reitei (Linte), A.D. 168–190, of the Han dynasty, both Chinese physicians, from whom their schools of medicine had originated). And now it comes to pass that medicines which they employ are nearly all new and imported: such as—here follows a list of thirty-three remedies mostly botanical, excepting the following: Tiger's gall, cinnabar from Shinchen-fu (Dr. Williams); clarified honey; hartshorn; lime; and the skin of the white-spotted snake."

"You possess these medicines and so I do not send them to you. As to the pharmaceutical apparatus, such as dishes, mortars, cutters, sand-baths, sieves, etc., you have heard that the men of the present age all carry with them such medicines as these, and to be without which one must be ashamed." [Here follows a list of "combination" remedies, among which is mentioned the following]: "Chinja-yen = chinja pellets, a medicine used in all painful nervous diseases. [Dr. Whitney says, as to the ingredients of chinja-yen, neither of the several sources of reference within the writer's reach state at all clearly.] There is, however, a medicine called 'shinsen' = 'chinja-guwan' or 'the heavenly mountain spirit' (chinja pellets), which contains the following ingredients: Myrrh, dragon's blood from Sumatra (Dr. Williams), musk, cinnabar from Shinchen-fu in Hunan, China (Dr. Williams), inula-helinum, and liquorice. These should be reduced to

powder. The liquorice should be boiled until it becomes glossy, then mixed well and made into small pellets, one of which is a dose, and should be masticated well, and swallowed with a draught of a decoction called 'kiyo-yen-to' = 'ginger and salt decoction."

[Both of these references are instances of a Japanese use of mercury before any European advent.]

During the thirteenth and fourteenth centuries there had been a decline or decay of Chinese medicine in Japan, and it was to the innovations that were being introduced and originated that Mr. Kaku Kashiro made allusion.

In the *New York Medical Record*, vol. xix, 1881, an American again, Dr. D. B. Simmons, late of the Yokohama General Hospital, Japan, in an article entitled "Medical Practice in Japan," in speaking of the use of drugs by the Japanese physicians, has this to say:

"The therapeutics of the Chinese school, however, is more rational, in that experience has led its disciples to use a variety of drugs of undoubted efficacy in disease, such as cathartics, diuretics, diaphoretics, sedatives, astringents, antispasmodics, emetics, etc. Some of which, if not already adopted by Western nations, might form valuable additions to their Materia Medica. For example, the use of aconite, lately lauded so highly in the West, for certain forms of neuralgia, and of mercury in syphilis, is undoubtedly of Chinese origin. So universal has it been the custom of the disciples of the old schools of medicine in Japan, to use mercury in the treatment of all venereal sores, that in nearly twenty years of hospital and private practice among the natives. I have rarely met with one, who has ever had a chancre, who has not been thoroughly mercurialized by stuffing the nostrils with cotton or paper saturated with the drug. Most of the doctors of the new, or foreign, system, however (who, by the way, reject everything, good or bad, in the old), have, for the most part, not only abandoned this mode of treatment of syphilis, but have gone to the other extreme, of not using mercury in any form, relying entirely on iodide of potassium, for its cure, in all stages. With the generally accepted opinions as to the value of this drug in the treatment of this disease there is little doubt, but those suffering from it will, for a time at least, gain little by this change in practice."

Dr. Geertz ("Minerals and Metallurgy of Japan") says: "In Japanese books there is found no trace of alchemy. According to Ranzan, cinnabar was first used in Japan in 629 A.D., during the second year of the reign of the Emperor Monmu."

"Calomel (*keifum*) was first manufactured in Japan in 714 A.D." Its medical use in syphilis was known long before this date.

Dr. H. Miyake, formerly dean of the Imperial University of Tokio, Medical Department, wrote me some years ago, that I was "undoubtedly right" in opposing the statement that the Japanese use of mercury in syphilis was derived from Europeans. He said that its use was undoubtedly of Chinese origin; and that it was anciently used in Japan as a secret remedy, but that it was difficult to say at what exact time Japanese physicians and pharmacists began to use it as a treatment for syphilis.

Now, Japanese silver was found in 674 A.D., and the first Japanese gold was found and melted in 749 A.D. Quicksilver must surely have been known, at this time, in their refinement of gold; for gold and quicksilver were known in China from earliest times, and the Japs would naturally know them through the Coreans and the Chinese.

Dr. Whitney divides the history of medicine in Japan into five periods.

(1st) Mythical period,—from most ancient times to about B.C. 200, being the period of so-called *pure* Japanese medicine.

(2d) Introduction of Chinese and Corean medicine,—from B.C. 200 to A.D. 700.

(3d) Establishment of the university; growth and decay of the Chinese school of medicine,—from the beginning of the eighth century to the middle of the sixteenth century.

(4th) Introduction of Western medicine and revival of the Chinese school,—from the middle of the sixteenth century to the beginning of the present reign, 1868, A.D.

(5th) State of medical affairs at the present time.

Dr. Whitney says: "The medical library of Wake (of Wake and Tamba systems of medicine, before mentioned, as using mercury in the treatment of disease) was destroyed in 1370 A.D. Succeeding the Wake and Tamba schools came that of Tashio-Dodo (or Todo), whose theories were first taught in 1465 A.D.

"Tamba wrote 'I-shin-po,' an encyclopedia of Chinese medical works of the Sui and T'ang dynasties (589–907 A.D.), and was a noted professor (not a paid reviewer) of acupuncture, 809 A.D. Evidently he derived his knowledge of the use of mercury from the Chinese, as the date 809 A.D. coincides with that of the publication of 'Dai-do-ruishinsho,' which gives a description of syphilis (and he knew syphilis well).

"These schools of Wake and Tamba taught the principles of the treatment of disease of the Chinese school of T'ang, and they had so

thoroughly permeated the teachings of the learned professors of the land that it was feared the pure Japanese art, as taught in ancient times by the gods to men, would, ere long, cease to be known or practised; besides this, in the early reign of the Emperor Heijo, A.D. 806–810, a plague had visited the country which, like that of an earlier day, had carried off many of the youths of the land, and a return of which plague was continually dreaded. The emperor thinking, therefore, that, perhaps, the return to the methods of early days might result in good to his people, and avert the threatened evil, ordered Abe-no-Masanawa and Idzumo-no-Hirosada to prepare a work on pure Japanese medicine, which they set about, and completed soon after, in the third year of this reign, being called the period of Daido (A.D. 806–809). This work, the 'Daido-ruishinsho,' or collections of methods of the period of Daido, comprising one hundred volumes, contained the formulæ and modes of employment of various medical compounds, which had been in use since the days of 'O-na-muchi' and 'Suka-na-hiko-no-mikoto' (both princes of the mythical period of Japan's history; the latter literally meaning Prince Small Name!); and which had been handed down from them, together with a few of the best prescriptions obtained from foreign lands. These formulæ and the modes of their employment were collected from ancient records in country villages and Shinto shrines (a medical priesthood being in existence), and from noted houses of country physicians who still practised according to the old methods, and who had kept the knowledge of these prescriptions secret; also 'laws regulating the practice of physicians.'

"The Daido-ruishinsho [a complete manuscript copy (several volumes) is in the University of Pennsylvania medical library, Ashmead] was the 'standard for Japanese prescribing,' and was intended to controvert the growth and development of the Chinese school. We can therefore readily understand why it did not mention the use of the Chinese remedy, mercury, in the treatment of syphilis.

"It epitomized medicine down to the end of the eighth century.

"Medical priests now became plentiful again, and 'even held the court positions, once filled by the descendants of Wake and Tamba; and the Chinese schools of practice,' 'Ritoyen' and 'Shui-Tankei,' came into favor.

"Ritoyen lived 1280–1368 A.D., and was a pupil of Cho-gen-so (a Chinese), and believed 'internal diseases to be caused by the penetration of pestilential vapors from outside the body; and those of the stomach, by improper food, and over-exertion.'

"His was the eclectic school. Shui-Tankei was born during the reign of the Yuen dynasty, and was thoroughly acquainted with the teachings of Ritoyen. From these two teachers sprung the late Chinese schools, which were known as 'Ri' (or Toyen) or 'Toko,' and 'Shui' (or Tankei).

"Tashiro Dodo (or Todo) was the first to teach the doctrines of these schools in Japan. He was born A.D. 1465, and spent twelve years in China, where he became acquainted with the teachings of Ritoyen and Shui Tankei, and upon his return brought the Chinese books, and taught what he had learned during his absence.

"Sho-kei (or Chokei) was the successful propagator of the doctrines of these schools. He was born 1507 A.D., and was reared in a Buddhist temple at Kioto."

The "Outline History of Education in Japan" states that Nagata Tokuhon (Japanese) afterwards revived Japanese medicine, and taught nineteen medical doctrines, among them being the natural instinct (*vis medicatrix naturæ*).

Europeans first appeared in Japan in 1543 A.D.; Portuguese navigators from Goa. After them came Francis Xavier, with his Jesuit disciples, who introduced Christianity in 1558 A.D.

The first hospital of European surgery was instituted in Japan in the year 1559 A.D., and many medical schools and colleges soon taught European methods of practice, notably the Jesuit native school of Namban, which became a system, and handed down its European early teachings. Dr. Whitney says that it was known as the Namban-jin or "school of Southern barbarians."

Dr. Nagayo has alluded to this school and its teachings, and to some "Italian" (Arai) teachings, which remained even after the expulsion of the Jesuits.

In Dr. Whitney's "Notes" there is a compilation of Chinese and Japanese medical works and translations, from various Japanese libraries, and the Imperial Library at Pekin, China. Also lists of medical works mentioned in Dr. Wylie's "Notes on Chinese Literature," and by Paon-Tso-Hwang (Ho-so Kuwan), in his article on Chinese medicine (page 293) recently published in the Han-Pao, Shanghai. In all 1541 different works, of which 1078 are Japanese and 473 Chinese, written upon subjects as follows: Acupuncture, etiology, anatomy, biography, bibliography, botany, catalogue, colds and fevers, children's diseases, cholera infantum, clinical medicine, cauterization by moxa, commentary, collection of reports, cyclopedia, diseases of cattle, dentistry, diarrhea, diagnosis, dictionary, elementary, epidemics,

explanations, fevers, fractures and dislocations, general surgery, history, intermittent fever, kakke, leprosy, medical weights and measures, medical rules, medical commentary, medicine, malarial diseases, materia medica, measles, medical history, nosology, nervous diseases, obstetrics, ophthalmology, pathology, physiology, popular medicine, prescriptions, pulse, surgery, shampooing (massage), small-pox, syphilis, symptomatology, therapeutics, veterinary medicine, water cure, woman's diseases, wounds and sores (skin-diseases?). Besides which, curiously, volumes on the following subjects: Bear's gall (used quite extensively in Japan as a witch unguent to ward off small-pox. A smoot is made on the forehead with the finger smeared with it. This is not the only gall there); fevers (a multitude of books on this subject; the earliest dated being in the eleventh century; others dated 1203 A.D., 1341 A.D., and to modern times); parasites; ancient medicine; charms (not female?); colic and aneurism; venesection; diseases of ear; tetanus; mythology; medical philosophy; emetics; medical superstition; hemorrhoids; topographical anatomy; cholera, diseases of the throat; treatment of dog-bites; sores of eyes and arms; epilepsy; treatment of emergencies; shower-bath; artificial respiration; foods; ginseng; jurisprudence; pharmacy; diseases of arms; hydrothorax; hydrophobia (quite an extensive array of volumes on this last. Dog-, cat-, and rat-bites being common in Japan and China. In China hydrophobia is said to be epidemic at times, but I never saw it in Japan); cookery; a medical dissertation on cheese (from Japanese milk of human kindness, probably, as cow's milk was not used in Japan); anatomy of the horse; medical ethics (*mirabile dictu!*); cancer; phthisis (but one volume, yet the disease is wofully prevalent and ancient); medical talks; manufacture of sugar; hygiene of children; three volumes on ulcers and diseases of uro-genital organs, and thirteen volumes on syphilis, dated 1767 A.D., down to 1843 A.D.

Dr. Whitney says: "The works on Western medicine and allied sciences are, for the most part, translations or compilations from foreign writers." A list of such works used in government schools contains not a few familiar names, such as Barker and Quackenbos on Natural Philosophy; Roscoe and Fresenius on Chemistry; Smith and Gray on Anatomy; Herman, Becker, and Huxley on Physiology; Neimeyer on Practice of Medicine; and Loomis on Diagnosis.

The catalogue of Maruya & Co., the largest booksellers in Tokio, gives the following number of foreign medical works on each of the subjects mentioned below: Chemistry, 54; Anatomy, 36; Physiology, 36; Pharmacy, 61; Practice of Medicine, 13; Diagnosis, 22; Surgery,

41; Obstetrics and Gynecology, 14; Children's Diseases, 14; Sanitation and Hygiene, 44; Ophthalmology, 13; Otology, 1 (diseases of ear are widespread, too); Dentistry, 4; Specialties, 45; Dictionaries, 6; Medical Jurisprudence, 10; Veterinary Medicine, 11; miscellaneous medical works, 57.

Besides these there are the medical publications of the Army, Navy, and Home Departments, and medical periodicals.

To wind up: Mercury was used in Japan as early as the Wake and Tamba systems of medicine. The Japanese derived their knowledge of its use from the Chinese of the Sui and T'ang dynasties, 589 to 907 A.D. After the Portuguese-European rise of the Jesuit "Namban" (barbarian) school of Western medicine, 1580 A.D., came the Dutch physicians, and their influence, 1580–1600 A.D. These Jesuit and Lutheran antagonists, warring for church supremacy, retarded the advance of European medicine in Japan. The Jesuits were finally massacred or expelled, and the Dutch imprisoned outside the gates on the Island of Dejima, opposite Nagasaki, where they remained for 200 years. In 1751 A.D. there developed in the Japanese a translation era, when Dr. Mayena and Dr. Sugita (to the latter belongs the greater prominence) translated many Hollandish medical works.

Besides works on anatomy, practice of medicine, and treatment of sores (skin-diseases), Dr. Sugita wrote himself the following treatises: "Night Talks with a Shadow" (ghost), "Seven Hinderances to Hygiene," "The Guardian Grasses," "Precious Miso" (a sauce made from "soy" beans, which probably refers to the spiritual "sauce" in Japanese medical teaching), "Soliloquy of an Octogenarian."

Dutch influence remained paramount until Commodore Perry's advent, in 1854; then American medicine entered Japan. As soon as we had blazed a way through the dusky medical atmosphere, the Germans came. These three influences, Dutch, American, and German, in the order named, maintained supremacy until 1879, when all foreign medical men, whose wives were not native or who were not otherwise *naturalized*, were dismissed. Now all is cocksure Japanese. They believe that they no longer need teachers. The present "improved" medical science of Japan dates only from the beginning of Mitsuhito's reign, 1868 A.D. It is far from perfect. To know how little like ours it is, one must live there.

ALBERT S. ASHMEAD, M.D.

NEW YORK.

MISCELLANEOUS.

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

THE College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about one hundred and eighty dollars, will be made on July 14, 1900, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered.

Essays intended for competition may be upon any subject in Medicine, but cannot have been published, and must be received by the Secretary of the College on or before May 1, 1900.

Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author.

It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award.

The Alvarenga Prize for 1899 has been awarded to Dr. Robert L. Randolph, of Baltimore, Md., for his essay entitled, "The Regeneration of the Crystalline Lens, An Experimental Study."

THOMAS R. NEILSON,
Secretary.

BOOK NOTICES.

AN AMERICAN TEXT-BOOK OF SURGERY FOR PRACTITIONERS AND STUDENTS. Edited by WILLIAM W. KEEN, M.D., LL.D., and J. WILLIAM WHITE, M.D., Ph.D. Third edition, thoroughly revised. Philadelphia: W. B. Saunders, 1899.

The American Text-Book of Surgery is now so widely known that in calling attention to the third edition it will be necessary to refer only to the changes and additions that have been made in the revision.

The general work of revision involved careful scrutiny of every page, and changes were made wherever it was thought possible to improve upon the former edition.

Among the new topics that have been introduced are: Serum therapy, leucocytosis, post-operative insanity, the use of dry heat at high temperatures, Krönlein's method of locating the cerebral fissures, Hoffa's and Lorenz's operations for congenital dislocations of the hip, Allis's researches on dislocations of the hip-joint, lumbar puncture, forcible correction of the spine in Pott's disease, treatment of exophthalmic goitre, the surgery of

typhoid fever, gastrectomy and other operations on the stomach, new methods of intestinal suture, the use of Kelly's rectal specula, surgery of the ureter, Schleich's method for local anesthesia, Krause's method of skin-grafting, the use of gloves, etc.

The sections on appendicitis, fractures, and gynecology have been revised and enlarged. A number of new illustrations have also been introduced. The chapter on the Röntgen ray has been brought up to date.

To make room for the numerous additions mentioned, the editors were obliged to omit the chapters on diseases of the eye and of the ear. This will be considered an improvement rather than otherwise, inasmuch as the subjects named have become so important that they cannot be satisfactorily presented in the space available in a work on general surgery.

It must be very gratifying to the editors that nearly 29,000 copies of the first two editions were sold, and that the work has been adopted as a text-book in over one hundred medical colleges. No higher praise could be accorded than is contained in this statement.

A Text Book of Practical Therapeutics, with Especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia, etc. Seventh edition, enlarged, thoroughly revised, and largely rewritten. 8vo, pp. 776. Philadelphia and New York: Lea Brothers & Co., 1898.

The salient features of Dr. Hare's Therapeutics are so well known that an extended review is unnecessary. That the present edition should be the seventh in eight years shows what a steady demand there has been for the book. The author has kept to his original plan, this seventh edition differing from its predecessors in being more complete and containing fresher information about the newer drugs, and in the introduction of illustrations which aid very much in making the text clear. There are good illustrations showing the method of giving a hypodermic injection, a hot-air bath, a hot pack, administering hypodermoclysis, etc.

The book is, as its title indicates, practical. We like the author's frankness in stating his own opinion as to the value or uselessness of a drug. The present edition is an improvement over any of its predecessors, and we can cordially recommend it.

The Physician's Visiting List for 1900. Philadelphia: P. Blakiston's Son & Co.

The convenient, neat, and compact form of this pocket visiting list, that has made it so popular for many years, has been retained in the edition for 1900. It is made in various styles, with space for 25, 50, 75, and 100 patients per week; a perpetual and a monthly edition are also issued.

It contains the usual dose table, comparison of the metric and apothecary's measures, table for calculating the period of utero-gestation, etc.

INDEX TO VOLUME XII.

PAGE.

Abdominal Wall, Tumors Developing in 126
Abortion, Treatment of 51
Acute Cholecystitis 83
Acute Endocarditis, an Undescribed Diplococcus in 42
Adenoids, Postnasal, in Influenza, Rapid Disappearance of 175
Adler: Excessive Sweating of the Feet 182
Allbutt: The Diagnosis of Early Phthisis 173
Allen: Eclampsia Treated by Saline Infusion 183
Alumni Notes 35, 105, 169
Alvarenga Prize of the College of Physicians, Philadelphia 199
American Physician, the, as a Prescriber of Medicine 97
Anemia, Red Bone-marrow in 48
Aneurism of the Coronary Artery 60
Antipyrin in Dysentery 115
Antitetanic Serum, Intracerebral Injection of, in a Case of Tetanus 47
Apparatus in Celiotomies 19
Appointments: Cattell, Henry W., M. D. 109
Chance, Burton K., M. D. 170
Clark, John G., M. D. 109
Cruice, John M., M. D. 170
Lauderdale, W. C., M. D. 109
Stafford, Samuel Patterson, M. D. 109
Stevens, A. A., M. D. 170
Taylor, A. E., M. D. 170
Argonin in the Treatment of Purulent Ophthalmia in Infants 123
Ashmead: Etiology of Malarial Fever 64
Extinction of Malarial Infected Mosquitoes by Eucalyptus 130
Medical Knowledge in Japan 192
Bacilli of Typhoid Fever in the Urine of Typhoid Fever Patients 191
Bell: Sun Fever, a Hitherto Unreported Tropical Malady 93
Belladonna in Bronchopneumonia of Children 113
Beyea: The Technique of the Operation of Celiotomy as Practised at the University Hospital and the Report of One Hundred and Forty-one Consecutive Celiotomies Performed at the University and Gynecean Hospitals 15
Bidwell: Operations in Gastric Ulcer 51
Bie: Finsen's Photography 120
Birch-Hirschfield: The Seat and Development of Primary Pulmonary Tuberculosis 57
Blanc: Removal of Seven Uterine Fibroids with Preservation of the Uterus 188
Blech: Eudoxine in the Intestinal Infections of Childhood 121
Blood, Human, Clinical Estimation of the Quantity of Hemoglobin in 26
Blood-vessels in Syphilis, Changes in the 127

PAGE.
Bock: Hydatid Mole in a Virgin; Membranous Dysmenorrhea 185
Bologninis: Sign of Measles 172
Bong: Ergot as a Cause of Rupture of the Uterus 54
Boyd: Oöphorectomy for Inoperable Carcinoma of the Breast 177
Bronchopneumonia of Children, Belladonna in 113
Brünings: Lipomyoma of the Uterus 54
Brunton: The Treatment of Headache 180
Buettner: The Therapeusis of Salipyrin in Gynecology 126
Buschke: Eruptions in Gonorrhea 63
Cancer of the Breast, Dissemination of, and Necessity for Extensive Operation 45
of the Pyloris, a Simple Palliative Operation for 80
the Increase of 110
Cappo: Aneurism of the Coronary Artery 60
Carcinoma of the Breast, Oöphorectomy for Inoperable 177
Cardioesophageal Gush and Click 43
Cataract, Complicated 69
Celiotomy, Apparatus in 19
Operating Room in 20
Operator, Assistants and Nurses 20
Preparation of Dressings in 18
Ligatures and Sutures in 19
Patients in 17
Sterilization of Instruments in 19
Technique of, at University Hospital, and Report of Cases 15
Treatment of 22
Water in 19
Cervix, Annular Separation of, in Labor, a Case of 124
Cesarian Section, Indications for 187
Changes in the Blood-vessels in Syphilis 127
Childhood, Eudoxine in the Intestinal Infections of 121
Children, Belladonna in Bronchopneumonia of 113
Cholecystitis, Acute 83
Chorea, Acute, Pathology of 190
Chrysarobin for Warts 50
Cleft Palate, Operations for 109
Clinical Estimation of the Quantity of Hemoglobin in Human Blood 26
Colitis, Mucomembranous 115
College of Physicians of Philadelphia, Alvarenga Prize of 199
Collins and Muskens: The Treatment of Paralysis Agitans 122
Colpoceliotomy, Sixty Cases of 53
Complete Tear of the Perineum, Operation for 55
Concerning Hyoscine 159
Congenital Absence of the Vagina 73
Contributions to the Knowledge of Malaria 129
Coronary Artery, Aneurism of 60
Coste: Diazo Reaction in Erysipelas 115
Cough, Heroin in 180
Craniotomy, Indications for 187

PAGE.
Curriculum, the New, of the Department of Medicine of the University of Pennsylvania, which Went into Effect with the Session of 1899–1900:
Anatomy ... 133
Applied Anatomy ... 141
Chemistry ... 136
Clinical Medicine ... 151
Dermatology ... 143
Gynecology ... 144
Hygiene ... 137
Materia Medica, Pharmacy and General Therapeutics ... 142
Medicine ... 156
Obstetrics ... 147
Ophthalmology ... 144
Pathology ... 138
Physiology ... 135
Surgery ... 148
Curtin: Cardioesophageal Gush and Click ... 43
Cyst, Infected and Inflamed, Removed in Puerperium ... 76
Dana: The Pathology of Paralysis Agitans ... 190
Danger Signals of the Pre-eclamptic State ... 65
Demonstration of Tetanus Bacillus in the Organs of Experimental Animals ... 129
Department of Medicine of the University of Pennsylvania, the New Curriculum ... 133–158
Diagnosis of Early Phthisis, the ... 173
Diagnosis of Mitral Stenosis ... 7
Diagrams of Murmurs in Mitral Stenosis ... 10
Diaphragmatic Hernia ... 60
Diastasis of the Symphysis Pubis, Congenital ... 185
Diazo Reaction in Erysipelas ... 115
Diphtheria, the Value of Dry Antitoxin in ... 49
Diplococcus, an Undescribed, in Acute Endocarditis ... 42
Diseases of the Nails with Especial Reference to their Significance as Symptoms ... 62
of the Stomach, Nonmalignant, Surgical Treatment of ... 118
Dissemination of Cancer of the Breast and Necessity for its Removal by Extensive Operation ... 45
Distribution and Origin of Tuberculosis in Children ... 61
Dorland: American Pocket Medical Dictionary ... 68
Dormitories, the New ... 35
Dorsal Percussion ... 114
Douglass: Hay Fever ... 114
Dry Antitoxin, a Clinical Study of its Value in Diphtheria ... 49
Dysentery, Antipyrin in ... 115
Earle: Tumor of the Uterus Complicated by Twin Pregnancy ... 124
Eclampsia Treated by Saline Infusion ... 183
Editorials: An Undescribed Diplococcus in Acute Endocarditis ... 42
Kernig's Sign in Meningitis ... 171

PAGE.
Editorials: Myoscitis 39
The Increase of Cancer 110
Vital Statistics of the United States 112
Endocarditis, Acute, an Undescribed Diplococcus in 42
Ergot as a Cause of Rupture of the Uterus 53
Eruptions in Gonorrhea 63
Erysipelas, Diazo Reaction in 115
Erythrol Tetranitrate 181
Etiology of Malarial Fever 64
Eucalyptus, Extinction of the Malarial Infected Mosquito by 130
Eudoxine in the Intestinal Infections of Childhood 121
Ewart: Dorsal Percussion 114
Excavation of Nippur, the 169
Experimental Animals, the Demonstration of the Tetanus Bacillus in the Organs of 129
Extensive Operation in Carcinoma of the Breast, Necessity for 45
Extinction of the Malarial Infected Mosquito by Eucalyptus 130
Favus of the Penis, a Case of 63
Feet, Excessive Sweating of 182
Fever, Hay 114
Sun 93
Fibroids, Uterine, Removal of Seven 188
Fibromyoma of the Uterus, Large, Resembling Ovarian Cyst 78
Finsen's Photography 120
Fischer: Dry Antitoxin, its Value in Diphtheria 49
Fistula, Recto-vulvar 75
Fitz: Chrysarobin for Warts 50
Formalin in Surgical Tuberculosis 122
Fowler: Red Bone-marrow in Anemia 48
Fractures, Thyroid Extract for Hastening the Union of 121
Fry: Occipito-posterior Presentations 185
Fuchs: Text-Book of Ophthalmology 66
Futcher: The Mosquito as an Agent in the Transmission of Malaria 44
Gallstones 179
Genitoruinary Diseases, Urotropin in 182
Gestation, Tubal 78
Gimlette: A Case of Tetanus Treated by Intracerebral Injection of Antitoxic Serum 47
Glück: A Case of Favus of the Penis 63
Goitre, Exophthalmic, the Operative Treatment of 175
Gonorrhea, Eruptions in 63
Gout, Sodium Biurate in 174
Grafstrom: A Text-Book of Mechanotherapy 67
Grosser: Diaphragmatic Hernia 60
Guthrie: The Distribution and Origin of Tuberculosis in Children 61
Gwyn: The Presence of Typhoid Fever Bacilli in Urine of Typhoid Fever Patients 191
Gynecean Hospital, Report of Celiotomies at 15
Gynecology, the Therapeusis of Salipyrin in 126

PAGE.
Haegler: Sterile or Antiseptic Ligature Material 125
Hahn: Formalin in Surgical Tuberculosis 122
Hare: Progressive Medicine 67
Harnack: The Poisonous Properties of Heroin 50
Harrison, C. C.: Address at the Opening of the One Hundred and Thirty-fourth Annual Session of the Medical Department of the University of Pennsylvania 105
Hay Fever 114
Headache, the Treatment of 180
Heart and Pericardium, Wounds of 116
Hemoglobin in Human Blood, Clinical Estimation of the Quantity of 26
Hernia, Diaphragmatic 60
Heroin, the Poisonous Properties of 50
Herwirsch: Heroin in Cough 180
Hilprecht: The Excavation of Nippur 169
Hirst: Clinical Notes from the Gynecological Service of the Howard Hospital 73
Hodghead: Belladonna in the Bronchopneumonia of Children 113
Hogarth: Severe Subcutaneous Injury to the Peroneal Nerve Relieved by Operation 117
Howard: Extinction of the Malarial Infected Mosquito by Eucalyptus ... 130
Howard Hospital, Clinical Notes from the Gynecological Service of 73
Hutchinson: Diseases of the Nails with Especial Reference to their Significance as Symptoms 62
Hydatid Mole in a Virgin; Membranous Dysmenorrhea 185
Hyoscine 159
Hysterectomy, Vaginal, Results of 186
Ichthyol in Phthisis 48
Ill Effects of Röntgen Rays 43
Illustrations: Chart in Lateral Sinus Phlebitis 163
Chart of Typhoid Fever Concurrent with Malaria 166
Congenital Absence of Vagina 73–75
Diagrams of Murmurs in Mitral Stenosis 10
Large Multilocular Fibroma 78
Multilocular Ovarian Cyst 77
Removal of the Tube and Four Months' Fetus 78
Unilateral Ophthalmoplegia 4
Vulvo-rectal Fistula 76
Infants, Protargol and Argonin in the Treatment of Purulent Ophthalmia of 123
Influenza, Disappearance of Postnasal Adenoids in 175
Myelitis following 14
Intestine, Resection of Nearly Two Metres of Small; Recovery 178
Intestinal Infections of Childhood, Eudoxine in 121
Intracerebral Injection of Antitetanic Serum in Tetanus 47
Iodide Eruption 62
Iodipin 183
Japan, Medical Knowledge in 192
Jessett: Results of Vaginal Hysterectomy 186

PAGE.
Jewett: Danger Signals of the Pre-eclamptic State 65
Kelly: Some New Instruments to Facilitate Myomectomy 54
The Operation for Complete Tear of the Perineum 55
Kelynack: The Pathology of Renal Tumors 189
Kernig's Sign in Meningitis 171
King: The American Physician as a Prescriber of Medicine 97
Klein: A Case of Precocious Puberty 125
Klingmüller: Iodipin 183
Koppen: Bolognini's Sign of Measles 172
Labadie-Lagrave: Urinary Toxicity in Pregnant Women 52
Labor, Annular Separation of the Cervix in 124
Lambert: Thyroid Extract for Hastening the Union of Fractures 121
Lantos: Treatment of Abortion 51
Lateral Sinus Phlebitis after Otitis Media in Typhoid Fever 161
Leopold: Comparison of Indications for Cesarian Section, Symphysiotomy, Craniotomy and Premature Delivery 187
Ligature Material, Sterile or Antiseptic 125
Lipoma of the Uterus 54
Lloyd: A Case of Unilateral Ophthalmoplegia 1
Loison: Wounds of the Heart and Pericardium 116
Luff: The Gelatinous Form of Sodium Biurate and its Bearing on the Pathology and Treatment of Gout 174
Lupus, New Treatment of, by Internal Medication 61
Malaria, Contribution to the Knowledge of 128
Concurrent with Typhoid Fever 165
the Mosquito as an Agent of Transmission in 44
Malarial Infected Mosquito, Extinction of, by Eucalyptus 130
Fever, Etiology of 64
Mallett: Parotid Gland Extract in Ovarian Disease 181
Mally: Postanesthetic Paralysis 119
Martin: A Simple Palliative Operation Applicable to Obstructing Cancer of the Pylorus Too Extensive for Complete Removal 80
Measles, Bolognini's Sign of 172
Mediastinum, Intervention in Lesions of the Posterior 72
Medical Department of the University of Pennsylvania, Annual Address at One Hundred and Thirty-fourth Session, by C. C. Harrison 105
Medical Knowledge in Japan 192
Membranous Dysmenorrhea, and Hydatid Mole in Virgin 185
Meningitis, Acute Streptococcal, Supervening in Chronic Nephritis 176
Kernig's Sign in 171
Merlin: The Uses of Naphthalin 121
Minni: Wounds of the Heart and Pericardium 117
Mitral Stenosis, Diagnosis of 7
Mosquito, Extinction of, by Eucalyptus 130
the, as an Agent in the Transmission of Malaria 44
Mucomembranous Colitis 115
Murmurs in Mitral Stenosis, Diagrams of 10
Myelitis following Influenza 14
Myomectomy, Some New Instruments to Facilitate 54

PAGE.
Myositis 39
Naphthalin, the Uses of 121
Nassilow: Intervention in Lesions of the Posterior Mediastinum 72
Necrology 37, 109
Nephritis, Chronic, Acute Streptococcal Meningitis in 176
Skin Eruptions Occurring During 62
Nerve, Peroneal, Severe Injury to, Relieved by Operation 117
Neuman: A Peculiar Form of Iodic Eruption Affecting the Skin and Mucous Membrane of the Stomach 62
New Treatment of Lupus by Internal Medication 61
Night Terrors, the Causation of 170
Normal Salt Solution in Toadstool Poisoning 182
Nose and Throat, Suprarenal Extract in the Treatment of the Affections of 181
Noyer: Normal Salt Solution in Toadstool Poisoning 182
Occipito-posterior Presentations 185
Olshausen: Tumors Developing in the Abdominal Wall 126
Oöphorectomy for Inoperable Carcinoma of the Breast 177
Operating Room in Celiotomies 20
Operation, a Simple Palliative for Cancer of the Pylorus 80
for Complete Tear of the Perineum 55
Operations, in Gastric Ulcer 51
for Cleft Palate 109
Severe Injury to Peroneal Nerve 117
Operative Treatment of Exophthalmic Goitre 175
Operator and Assistants in Celiotomies 20
Ophthalmia, Purulent, in Infants, Protargol in Treatment of 123
Ophthalmology, a Text-Book of 66
Ophthalmoplegia, Unilateral 1
Orleman: Ill Effects of the Röntgen Ray 43
Ostrom: Massage and the Original Swedish Movements 67
Otis: The Value of the Tuberculin Test in the Diagnosis of Tuberculosis .. 176
Ovarian Cyst, Infected and Inflamed 76
Paralysis Agitans, Pathology of 190
the Treatment of 122
Paralysis, Postanesthetic 119
Parotid Extract in Ovarian Disease 181
Patella, Treatment of Fracture of, by Suture of the Capsule 179
Pathology of Acute Chorea 190
Paralysis Agitans 190
Renal Tumors 189
Peck: Protargol and Argonin in the Treatment of Purulent Ophthalmia in Infants 123
Penis, Favus of 63
Percussion, Dorsal 114
Perforation of the Intestine in Typhoid Fever, Surgical Treatment of 49
Pericardium and Heart, Wounds of 116
Perineum, Operation for Complete Tear of 55
Peroneal Nerve, Severe Injury to, Relieved by Operation 117
Peterson: The Surgical Treatment of Nonmalignant Diseases of the Stomach 118

PAGE.
Phillipson: A New Treatment of Lupus by Internal Medication 61
Phlebitis, Lateral Sinus, after Otitis Media in Typhoid Fever 161
Phototherapy, Finsen's 120
Phthisis, Ichthyol in 48
Early, the Diagnosis of 173
Physician, the American, as a Prescriber of Medicine 97
Poisoning, Toadstool, Normal Salt Solution in 182
Poisonous Properties of Heroin 50
Postanesthetic Paralysis 119
Posterior Mediastinum, Intervention in Lesions of 72
Potts: A Case of Myelitis following Influenza 14
Precocious Puberty, a Case of 125
Pre-eclamptic State, Danger Signals of 65
Pregnancy, Twin, Complicating Tumor of Uterus 124
Pregnant Women, Urinary Toxicity in 52
Premature Labor, Indications for 187
Preparation of Dressings, Towels, etc 16
of Ligatures and Sutures 19
of Patients for Celiotomy 16
Presentations, Occipito-posterior 185
Primary Pulmonary Tuberculosis, Seat and Development of 57
Protargol in the Treatment of Purulent Ophthalmia of Infants 123
Puberty, Precocious, a Case of 125
Pylorus, Cancer of, a Simple Palliative Operation for 80
Pyloroplasty for Cicatricial Contraction; Recovery 103
Rapid Disappearance of Postnasal Adenoids after Influenza 175
Randall and Adams: Lateral Sinus Phlebitis after Otitis Media in Typhoid Fever 161
Recto-vulvar Fistula, Probably Due to Violence in Coitus 75
Red Bone-marrow in Anemia 48
Rehn: The Operative Treatment of Exophthalmic Goitre 175
Renal Tumors, Pathology of 189
Report of State Board of Health and Vital Statistics of Minnesota 68
Resection of Nearly Two Metres of the Small Intestine; Recovery 178
Reviews:
Blackiston, P., Sons & Co.: The Physicians' Visiting List for 1900. 200
Dorland, W. A. N.: American Pocket Medical Dictionary. 68
Fuchs, Ernest: Text-Book of Ophthalmology 66
Grafstrom, A. V.: A Text-Book of Mechanotherapy 67
Hare, Hobart Amory: Progressive Medicine 67
A Text-Book of Practical Therapeutics with Especial Reference to the Remedial Measures to Disease and Their Employment on a Rational Basis 200
Keen, W. W. (Keen & White): American Text-Book of Surgery.. 199
Minnesota, St. Paul: The Sixteenth Report of the State Board of Health and Vital Statistics of the State of Minnesota 68
Ostrom, Kurre W.: Massage and the Original Swedish Movements 67
White, J. William (Keen & White): American Text-Book of Surgery 199
Risley: Complicated Cataract 69

PAGE.
Rolleston: Acute Streptococcal Meningitis, Supervening in Chronic Nephritis 176
Röntgen Rays, Ill Effects of 43
Rupture of the Uterus, Ergot as a Cause of 53
Sachs: A Case of Annular Separation of the Cervix During Labor 124
Saline Infusion in Eclampsia 183
Salipyrin, Therapeusis of, in Gynecology 126
Sarwey: Sixty Cases of Colpoceliotomy 53
Schanta: Congenital Diastasis of the Symphysis Pubis 185
Schlatter: Resection of Nearly Two Metres of the Small Intestine; Recovery 178
Schuffner: Contribution to the Knowledge of Malaria 128
Scott: Skin Eruptions Occurring During Nephritis 62
Seat and Development of Primary Pulmonary Tuberculosis 57
Sharp: Suprarenal Extract in Affections of the Nose and Throat 181
Simpson: Gallstones 179
Sixty Cases of Colpoceliotomy 53
Skin Eruptions Occurring During Nephritis 62
Sodium Biurate, the Gelatinous Form, in Gout 174
Some New Instruments to Facilitate Myomectomy 54
Steele: A Case of Typhoid Fever with Concurrent Malaria 165
Sterile or Antiseptic Ligature Material 125
Sterilization of Instruments in Celiotomy 19
Stevens: The Diagnosis of Mitral Stenosis 7
Stiles: On Dissemination of Cancer of the Breast 45
Stomach, the Surgical Treatment of Nonmalignant Diseases of 118
Sun Fever 93
Suprarenal Extract in Affections of the Nose and Throat 181
Surgical Treatment of Perforation of the Intestine in Typhoid Fever 49
Treatment of Nonmalignant Diseases of the Stomach 118
Tuberculosis, Formalin in 122
Symphysiotomy, Indications for 187
Symphysis Pubis, Congenital Diastasis of 185
Syphilis, Changes in the Blood-vessels in 127
Technique of the Operation of Celiotomy at the University Hospital 15
Testicle, Tubercle of, in Childhood 6
Tetanus Bacilli, a Demonstration of, in the Organs of Experimental Animals 129
Treated by Intracerebral Injections of Antitetanic Serum 47
Therapeusis of Salipyrin in Gynecology 126
Thompson: Urotropin in Certain Genitourinary Diseases 182
Thomson: Pathology of Acute Chorea 190
Thyroid Extract for Hastening Union in Fractures 121
Toxicity, Urinary, in Pregnant Women 52
Transmission of Malaria, the Mosquito in 44
Treatment of Abortion 51
of Celiotomies 22
of Paralysis Agitans 122
Tubal Gestation, Advanced to Fourth Month and Retained Unruptured in the Abdomen for Seven Months 78

PAGE.
Tubercle of the Testicle in Childhood 6
Tuberculin Test, Value of, in the Diagnosis of Tuberculosis 176
Tuberculosis in Children, Distribution and Origin of 61
Seat and Development of Primary Pulmonary 57
Surgical, Formalin in 122
Tumor of the Uterus Complicated by Twin Pregnancy 124
Tumors Developing in the Abdominal Wall 126
Renal, Pathology of 189
Typhoid Fever, Lateral Sinus Phlebitis after Otitis Media in 161
Surgical Treatment of Perforation of the Intestine in 49
the Presence of Typhoid Fever Bacillus in Urine of Patients 191
with Concurrent Malaria, a Case of 165
Ulcer, Gastric, Operation in 51
Undescribed Diplococcus in Acute Endocarditis 42
Unilateral Ophthalmoplegia 1
United States, Vital Statistics of 112
University of Pennsylvania, New Curriculum of the Medical Department . 133
University Hospital, Technique of Celiotomy and Report of Cases at 15
Urinary Toxicity in Pregnant Women 52
Urotropin in Certain Genitourinary Diseases 182
Uses of Naphthalin, the 121
Uterine Fibroids, Removal of Seven 188
Uterus, Ergot as a Cause of Rupture of 53
Uterus, Fibroma of, Large, Resembling Ovarian Cyst 78
Lipomyoma of 54
Tumor of, Complicated by Twin Pregnancy 124
Vagina, Congenital Absence of 73
Vaginal Hysterectomy, Results of 186
Vital Statistics of the United States 112
Volkes: Treatment of Fracture of the Patella by Suture of the Capsule without Touching the Bone Fragments 179
Von Oettingen and Zumpe: A Demonstration of Tetanus Bacilli in the Organs of Experimental Animals 129
Vouzelle: Mucomembranous Colitis 115
Walsham: Erythrol Tetanitrate 181
Waring: Surgical Treatment of Perforation of the Intestine in Typhoid Fever 49
Warts, Chrysarobin for 50
Water in Celiotomies 19
Wertheimer: Ichthyol in Phthisis 48
White: Pyloroplasty for Cicatricial Contraction; Recovery 103
Wolff: Cleft Palate Operations 109
Wood, A. C.: Acute Cholecystitis 83
Wood, H. C.: Concerning Hyoscine 159
Wounds of the Heart and Pericardium 116
Yarrow and Hitchens: On the Clinical Estimation of the Quantity of Hemoglobin in Human Blood 26